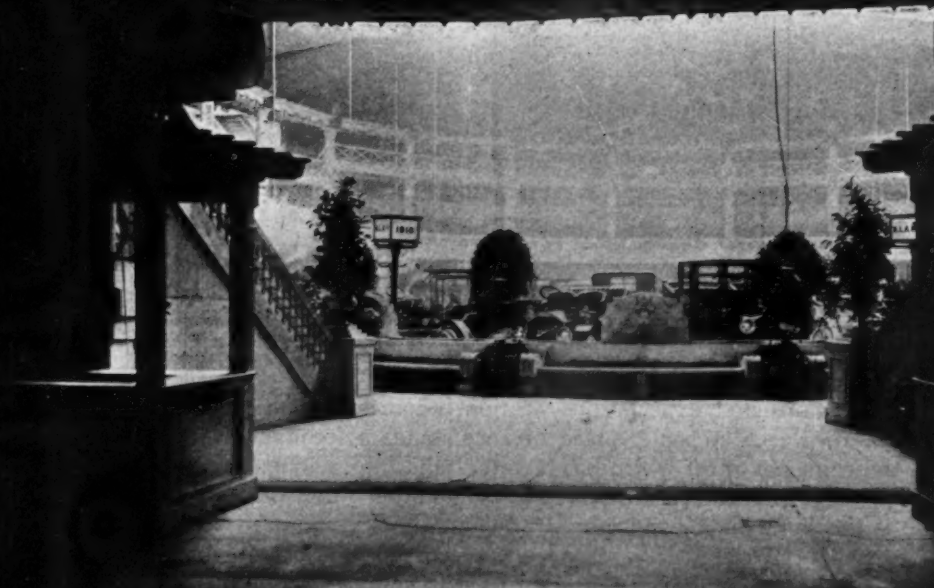


THE AUTOMOBILE

· A · L · A · M ·
· TENTH · NATIONAL ·
· SHOW ·



· MADISON · SQUARE · GARDEN ·
· JAN. 8 - 15, 1910 ·



Madison Square Garden Never Looked as Beautiful as It Does the Present Week, Filled with Splendid

SURPASSING even the predictions and expectations of those connected with it, the Madison Square Garden show has preserved the climactic effect which has its doings. As the industry is bigger and more prosperous than it was last year, so is the show bigger and more elegant. The exhibits have been prepared with a care and thoroughness which reveals the manufacturers' appreciation of its extent and importance. Their setting is of a nature to make the Garden worthy of a visit on that score alone.

For scenic effect the Garden show seems the last word. The proportions of the building, and the broad sweep of the exhibition hall, invite a decorative treatment at once simple and magnificent. Around the walls, outlining the galleries, stand massive Doric columns in snowy white; overhead a canopy of blue bunting conceals the roof beams and gives a background to a thousand electric bulbs that twinkle like stars. Perhaps the best view of the show as a whole is obtainable from the galleries. Looking down on the closely grouped cars and the swarming crowds, it is a dull man indeed who would fail to be impressed by the vigor and wealth of this still young industry. Those with an eye to the future will inevitably speculate on the development ten years more will bring.

In many of the smaller details the care taken in prepa-

ration becomes evident. Directly opposite the main entrance stands a fountain, fronted by a curved seat. The water falls into a long, narrow basin, strewn with pond lilies and other water plants, among which goldfish dart in and out. At any time during the day the seat may be seen occupied by visitors who, tiring of the exhibits, have paused to rest and watch the throngs that stream through the wide doors.

For the first time in the history of Garden shows the boxes so famous at the Horse Show have been thrown open to visitors. These are sufficiently elevated from the main floor to give their occupants a comprehensive view of the exhibits, and have proved popular with those who come because they regard the show as one of the great society events.

The attendance, which undoubtedly will be found at the end of the week to break all previous records, has been of every character. In the morning, when the crowds are not so great, come the tradesmen and those specifically interested in the mechanical details of the cars. It is then that the salesmen are forced to exhibit their best technical knowledge. Later in the day the attendance becomes at the same time more numerous and more fashionable. In the evenings no generalizations can be made; it seems as if half the city had turned out to attend.



Products of the American Automobile Industry, and Embellished with the Highest Type of Decorative Art

The exhibits on the whole are conservative. Half the models displayed show little, if any, change from those of last year. The most startling feature is the great number of torpedo or gunboat bodies shown. These are of every degree of radicalism. Some are only ordinary touring bodies with square doors front and rear; others run to the most extravagant curves and bulges. The manufacturers have found, however, that the torpedo body is a difficult proposition to handle, and it is doubtful if many of the models shown will be repeated very often for the benefit of prospective customers.

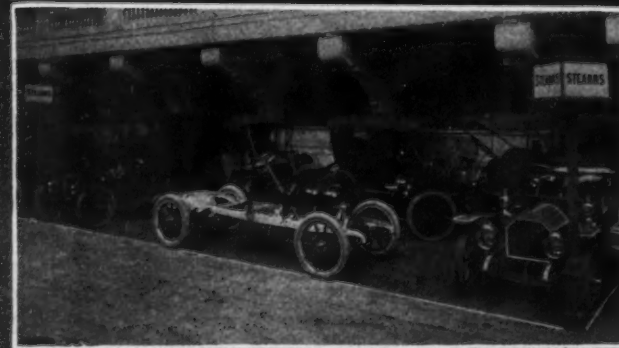
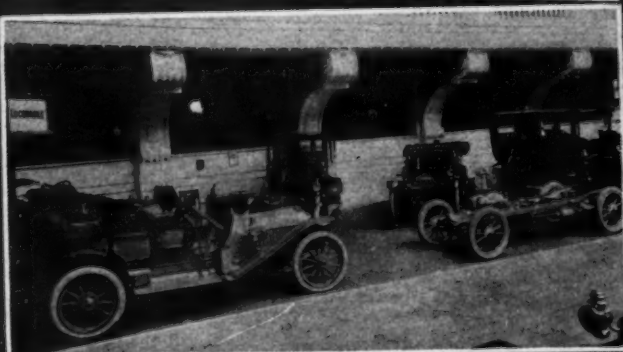
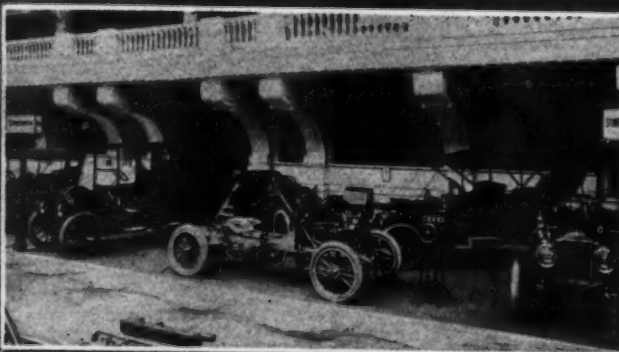
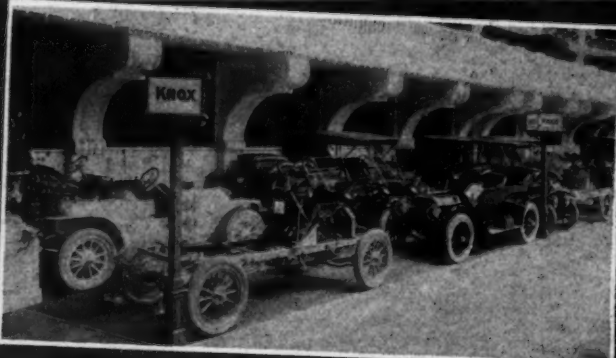
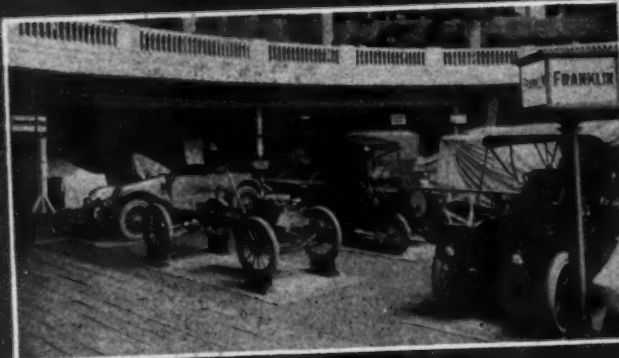
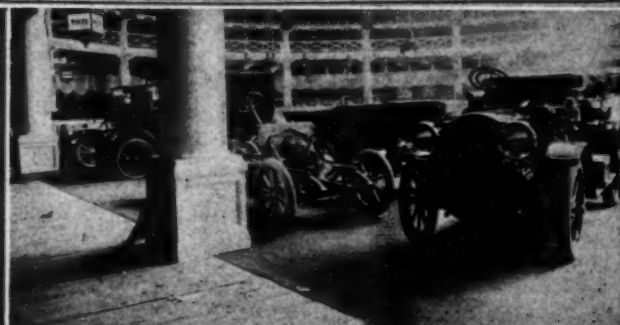
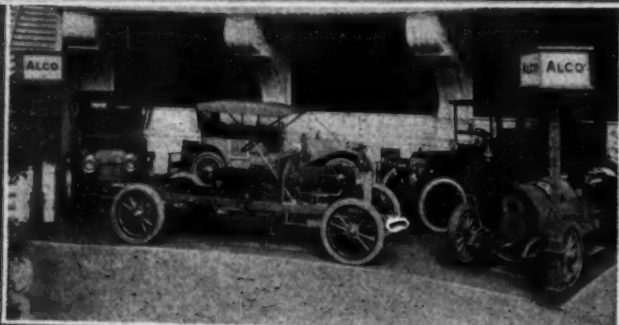
In its minor departments the show is up to the standard set on the main floor. Twelve manufacturers exhibit commercial vehicles, making a very complete and representative display of everything from the lightest delivery wagon to the heaviest five-ton trucks. The electric exhibit includes practically all the well-known makers of this type of automobile. Secluded from the main hall in the room known as the restaurant, it has a quiet and refinement very appropriate to the cars themselves. The accessory line includes 243 exhibitors, showing everything required to build or equip a car or to clothe its passengers.

The collection of trophies is most pretentious, and would put to blush many of the jewelry shops on Fifth

avenue. A visitor can employ several hours, if he so desires, in looking them over, and if he can identify every one of them he should receive a medal for his knowledge of automobile history. Among them are the Vanderbilt, Glidden, Indiana, Massapequa, Merrimac Valley, Brighton Beach, Dewar, Sewall-Alden, Tanforan, Thermoid, Lowell, Fairmount Park, Detroit and Dead Horse Hill cups. The collection is reminiscent of many hard-fought contests on track and road. Each of them, no doubt, has contributed its mite for the information of designer, mechanic and driver, and has aroused enthusiasm in many once scornful of the new vehicle.

Once again the show committee of the Licensed Association has earned the heartiest congratulations. In the present unsettled condition of the show question, when rumors are afloat that the historic Garden is to be torn down, it is not improbable that this, the tenth annual show, will be remembered by automobilists as the last to be held in the building which witnessed the first feeble steps of the industry. Perhaps this show may mark the end of the old and the birth of a new epoch. In such case the association will have no reason to be ashamed of its most recent effort. The show is in every way worthy of the industry which it represents, and no more could be said in its praise.

SOME NOTABLE EXHIBITS AT THE GARDEN





A Glance Down the Right Hand Aisle After Entering the Garden Shows Artistic and Advantageous Arrangement

EARLY DAYS OF THE AUTOMOBILE SHOW

By COL. GEORGE POPE, CHAIRMAN SHOW COMMITTEE A. L. A. M.

TIME was not so long ago when the automobile was as much of a curiosity as is the aeroplane to-day. The modern motor car is no longer an invention merely to increase the pleasure of the wealthy. It has taken a place in the commercial field, and at present can be found in all its forms on the city streets and country roads. This is an age of rapid progress, and nothing better illustrates the rapidity with which developments take place than the automobile. In less than twelve years the motor car has been developed from a noisy, crude and complicated piece of machinery to its present high standard form.

It was quite an adventure to ride in an automobile only a decade ago, and it required several days of preparation for a "joy ride." The occupants of the cars garbed themselves in overalls and started out fully equipped with tools to meet emergencies, and they usually made use of their tool equipment before the "long and comfortable" ride was completed.

There are several things to which can be attributed the advancement of the motor car. Automobile shows have played an important part in the development, as have road racing and kindred contests.

The development of the industry parallels the growth of automobile shows, and an outline history of the shows will give an interesting enlightenment on the rapid strides made since the first affair. At this show there were thirty-one exhibitors of cars and twenty exhibitors of accessories. There were not enough exhibits to fill the spaces, even with a board track on the main floor. Motorcycles and motor-tricycles were included with the automobiles. The track was used for gymkana events, starting, stopping and braking tests. The public was very skeptical concerning the automobiles on view, and occasionally a query was heard as to whether or not the cars would run up a hill. The first show was a financial success. The Garden was crowded at every session. The cost of putting on the first show was \$11,000, not including the cost of decorations, which were paid for by the exhibitors. At this time it is interesting to glance over the complete list of the exhibitors at this early show. They were:

Riker Motor Vehicle Co., Woods Motor Vehicle Co., American Electric Vehicle Co., Winton Motor Carriage Co., Waltham Mfg. Co., Peerless Mfg. Co., Ward Leonard Electric Co., Baker Motor Vehicle Co., American Bicycle Co., De Dion-Bouton Motorette Co., Buffalo Electric Carriage Co., National Automobile & Electric Co., Ohio Automobile Co., Autocar Co., Daimler Mfg. Co., Haynes-Apperson Co., Canda Mfg. Co., Duryea Power Co., Crest Mfg. Co., Automobile Co. of America, Knox Automobile Co., John T. Robinson & Co., Holyoke Automobile Co., Trinity Cycle Mfg. Co., Springfield Cornice Works, St. Louis Motor Carriage Co., Foster Automobile Mfg. Co., Diamond Rubber Co., Mobile Co. of America, Steam Vehicle Co., Stanley Mfg. Co., Chas. E. Miller, B. F. Goodrich Co., Dow Portable

Electric Co., Locomobile Co. of America, Overman Automobile Co., Rose Mfg. Co., Goodyear Tire & Rubber Co., Janney-Steinmetz & Co., New York Motor Vehicle Co., International Motor Carriage Co., Consolidated Rubber Tire Co., Badger Brass Works, C. F. Splittorf, Veeder Mfg. Co., Gray & Davis, Strong & Rogers, Automobile Club of America, Munger Vehicle Tire Co., Beven Bros., Ware Bros., New Process Raw Hide Co., E. A. Brecher & Co., Dixon Crucible Co., Downing & Co., Gleason Peters Air Pump Co., New York Belting & Packing Co.

The second national show was held in the Garden during the week of Nov. 2-9, 1901. There were ninety-three exhibitors in this. The track was omitted, and again there was a loan exhibit of foreign cars. Among them was a Darracq, a Napier, a Renault, a Mercedes, and a Mors shown by Foxhall P. Keene.

About this time the industry began to develop, and with an increasing output by the factories the makers found it necessary to act as wholesalers only. It was during the year of 1902 that the commercial future of American cars became more certain. The National Association of Automobile Manufacturers was organized, and it was decided after several conferences that the next show would be held at the beginning of the year instead of at the close, and it should be managed by a committee, on which the N. A. A. M., the Automobile Club of America—under whose auspices the first show was held—and the Garden company should each be represented, and it was arranged that these organizations should share in the profits.

There was no show in 1902, and the third one was held in the Garden during the week of January 17-24, 1903. The number of exhibitors had now grown to more than 150, and for the first time a foreign exhibitor took space; this was the Paris Automobile Company, represented by H. Fournier.

The fourth national automobile show was held at Madison Square Garden on Jan. 16-23, 1904. This show had more than 185 exhibitors, and was held under the same auspices as the previous one.

The automobile industry was growing so rapidly that at the fifth show in the Garden, January 14-21, 1905, many firms seeking space had to be refused. The show was held under the same auspices as before, and 250 exhibitors secured space.

With the 1905 show, the contract between the National Association of Automobile Manufacturers, the Automobile Club of America and the Madison Square Garden Company, expired, and the Association of Licensed Automobile Manufacturers obtained a lease of the Garden for several years, with an option of renewing it.

When the show passed to the auspices of the Association of Licensed Automobile Manufacturers, a committee was appointed

to take charge of the whole affair. Up to that time the individual exhibitors were permitted to decorate their booths as they pleased, and the general result was a mess of bunting, irregular and glaring signs, and there was a confusion of color to be seen everywhere about the Garden. The show committee took charge of the decorating and, in fact, everything connected with the show management. They formulated plans to make a harmonious exhibition, and the decorating was placed in charge of an expert. Thereafter the signs of the exhibitors were made of uniform size, color and design. Other details were carried out to conform with the ideas of the show committee.

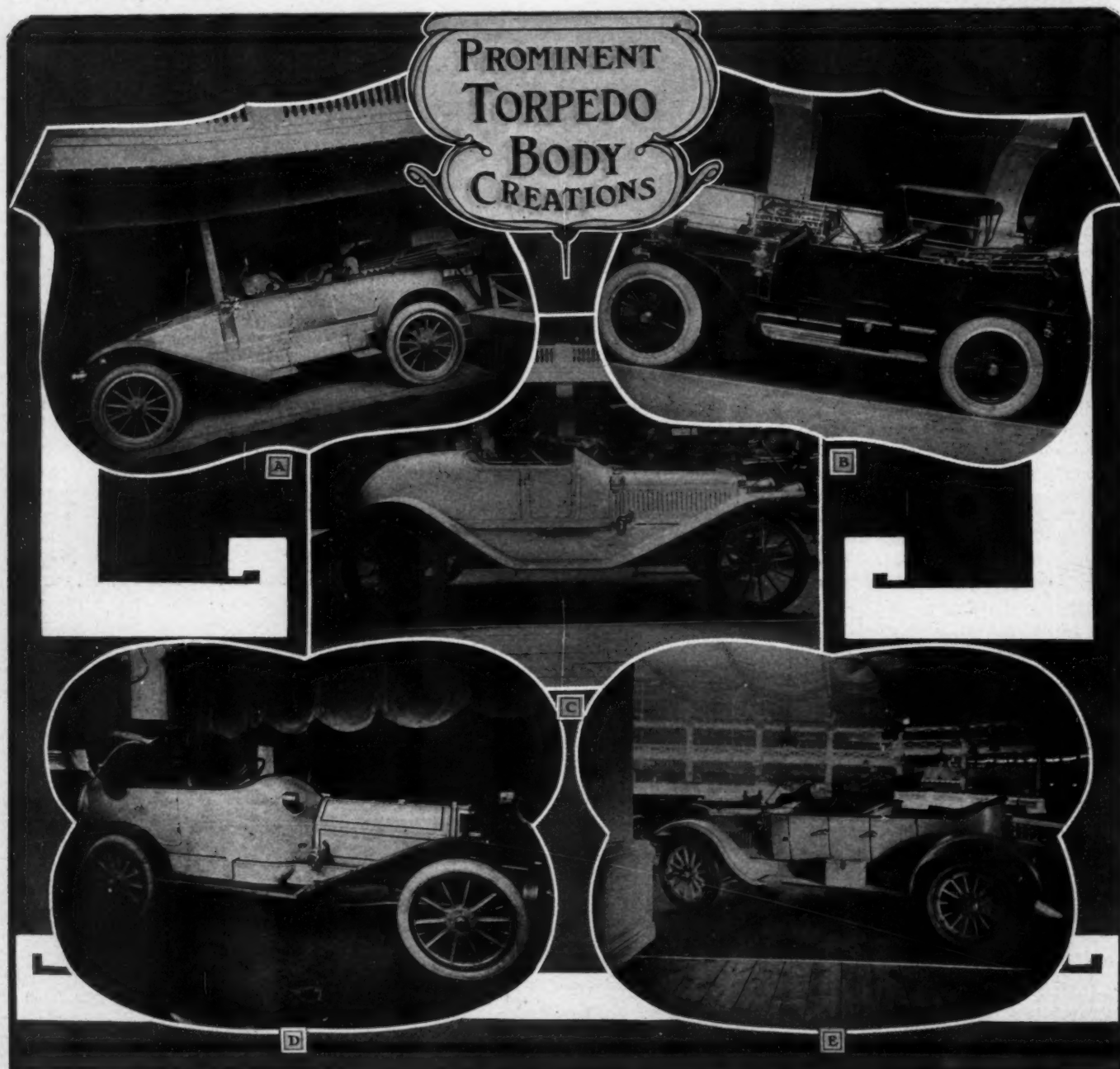
The sixth annual automobile show was held in the Garden, Jan. 13-20, 1906, under the auspices and management of the A. L. A. M. There were 50 exhibitors of cars and 170 exhibitors of parts and sundries.

Under the same auspices as its predecessor, the seventh annual show was held in the Garden during the week of Jan. 12-20, 1907. That the public was now deeply interested in automobiles was strongly emphasized by the vast number of people who attended the show on the opening night. More than 7,000 people were there. At this show there were 42 exhibits of cars and 202

accessory exhibits. There was another show that same year. It was held in Madison Square Garden during the week of Nov. 3-10, 1907. This was the eighth national automobile show under the auspices of the A. L. A. M. There were 68 exhibits of complete cars, a number of commercial vehicles and about 225 accessory exhibits.

The ninth national automobile show under the auspices of the A. L. A. M. was held in Madison Square Garden, Jan. 16-24, 1909. At this show there were 117 complete cars, 28 chassis, 37 electric vehicles and a number of commercial vehicles.

The number of exhibitors at the present show in the Garden, the tenth national, indicates in a great measure how wonderful has been the growth of the automobile industry in America. Even with an increase over last year of many thousands of square feet of floor space for exhibition purposes, many would-be exhibitors could not be accommodated. The list of exhibitors shows that there are 323 different displays, of which 54 are exhibits of complete cars, 23 are motor-cycle displays, and 240 are exhibits of accessories and parts. It can be safely said that the present show is bigger and better than its predecessors.



Torpedo Types Representative of the Most Advanced of Comfort-Creating Designs of the Year

(A) Franklin, (B) Knox, (C) Winton, (D) Palmer-Singer, (E) Royal Tourist

LIGHTING BY LATEST ELECTRIC METHODS

By Thos. J. Fay

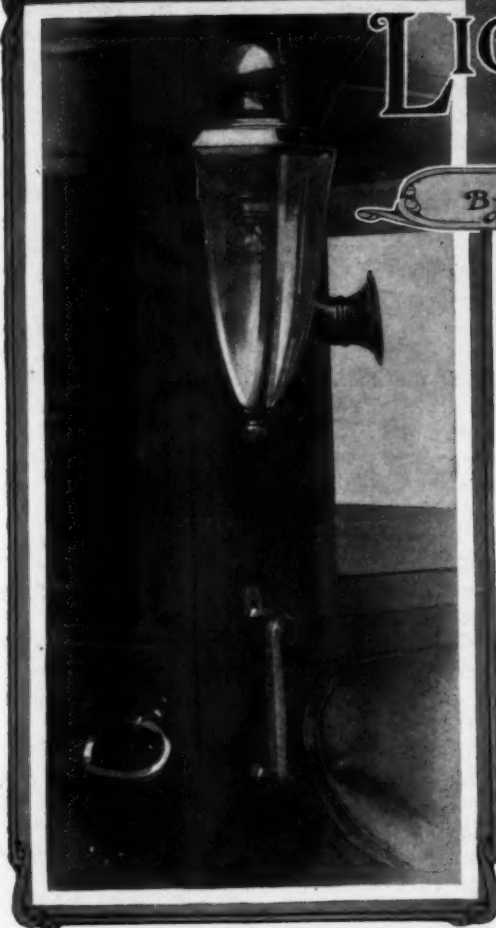


Fig. 1—Pierce-Arrow limousine of artistic design with electric lighting on the same basis

MERIT, like the mill of the gods, is sure, but, unlike the great contrivance, it is not, of necessity, slow. This same merit, as it resides in electric lighting as applied to automobiles, seems to have copied the first characteristic of the mills of the gods, for its development has not maintained pace with the well-authenticated qualities of

electric lighting as it is generally applied. The retarded growth of this branch of the industry was not due, at any time, to the absence of desirable qualities in electric light, nor can it be conclusively shown that the discovery of the tungsten lamp is to account for the present activity.

At all events, electric lighting to all appearances is now with us to stay. Tungsten lamps will have an important part, storage batteries will also be in proper presence, but it is in the source of electricity that the present activity is centered.

IMPROVEMENTS MADE IN METHODS OF DRIVING DYNAMOS

Dynamos, as they are used in conjunction with storage batteries (if they have to do charging work), are as a rule shunt wound, meaning that the coils of wire (insulated), which are wound around the fields for the purpose of exciting them, are in parallel with the armature windings, and this parallel relation has, among other advantages, the property of fixing the rotation of the armature in one direction only, whether or not current is entering the dynamo (thus making it a motor), or leaving the same, as when the machine is performing its proper function as a dynamo electric machine.

As a shunt wound machine, if the speed and load is constant, the voltage at the brush terminals will be constant also; if the speed changes, however, the voltage will change also, and if the load changes, so will the voltage, due to what is designated as armature "drop," which is due to I^2R losses, for the most part, and partly to heat increase, due to increasing load.

Constant Speed Required in Lighting.—If lighting is to be done direct from a shunt wound dynamo it is necessary to run the same at a constant speed, and if the load changes, then the resistance, as measured in ohms, of the field, must be adjusted to suit the altered conditions. A compound wound dynamo could

be used (is used in general lighting work) were the speed constant, and with changing loads; this type of winding differs from shunt windings, due to the presence of a second winding on the fields, which supplementary winding is in series with the armature, so that the output of the armature passes around the fields, and they are strengthened in proportion as the armature reaction tends to weaken them. Moreover, I^2R drop, in the armature as well as in the series winding of the compounded field, is compensated for, in fine, by over-compounding, which is but a matter of adding a few extra series turns to the field windings. It is possible to compensate also for line losses outside.

All these devices so well known to the electrical engineer are put to naught by the changing speed which obtains in a gasoline motor as it is used for its conventional purpose, and, to add to the confusion, the motor is likely to be stopped betimes, perhaps to make an adjustment, perchance by night, and lights will then be in excellent demand. A tail light, for illustration, should not be allowed to go out, especially when a car is standing still by the roadside on a dark night, and electric lighting, to be a good success, must be capable of doing its work at all times.

Under plain conditions, then, electric lighting direct from a dynamo cannot be done if the power is taken (to drive the dynamo) from the motor which is placed to propel the automobile, for the very simple reason, as before intimated, that the motor is required to run at a variable speed, and the dynamo requires a constant speed. True, there is such a scheme as a "differential compounding," it having the facility, within limits, of rendering the characteristic of the dynamo that of a constant voltage machine under a variable condition of speed. Unfortunately, as it seems, the range of this type of machine is very limited, and it will be remembered that automobile motors change in speed over a broad range; possibly as much as 10:1.

Obviously it would be an extremely difficult task to so design a dynamo that the differential compounding would work satisfactorily under such wide conditions of speed change, nor has any designer ever succeeded in accomplishing this to extent, although, in connection with wind-motors (which run at a variable speed), some success was attained, and for a time it looked as if the task might be fulfilled within certain limits.

Special Forms of Windings Abandoned.—The struggles for success through special windings on the dynamos used were long ago abandoned, and for a time it looked as if electric lighting would have to be accomplished through the use of storage batteries unaided by any automatic charging means at hand, which idea, from evidences afforded, seems not to have appealed to autoists, and as a result acetylene lighting was relied upon for the most part. The storage battery unaided, as will be readily appreciated, would have to be of large capacity, or it would be necessary to remove and recharge the same at frequent intervals. This might not be a task of great difficulty were all cars maintained in garages equipped for the work of charging storage batteries, but such is not the case, and, to care for the great majority of automobiles, it has been necessary to fit out with acetylene lighting equipment.

What This System Comprises.—Referring to (A) Fig. 2, and to C in the figure, which is a camera, it will be noted that the same is focused on a dynamo D in the figure, and the photograph was taken utilizing the actinic rays, which emanated from the searchlight L just below and to one side of the camera. This illustration indicates that the light is of high intensity, and the

dynamo, which is about to be described, was driven in this case by an electric motor for the obvious purpose of illustrating its capability under speed changing conditions.

The electric motor placed and connected with the dynamo was of the shunt wound variety, and a rheostat was utilized for the purpose of varying the speed of the motor, in order to approxi-

mate the conditions which exist when the lighting dynamo is connected with a gasoline motor as it is used on an automobile. This is done with a view of having the lighting dynamo run at a constant speed, notwithstanding speed variations over a wide range of the automobile motor.

In order to indicate the compactness of the lighting dynamo, B, Fig. 2, is offered in which D is the dynamo, showing the exterior, and how thoroughly it is enclosed, while B is the belt running over a pulley, which also connects over a driving pulley, placed at some convenient point on a driving member of the automobile motor. The power which comes from the automobile motor is subject to wide speed variations, and these variations are transmitted along the belt B, thence to the dynamo pulley and shaft which protrude out through the shell D of the dynamo.

In order to appreciate the operation of the dynamo, it will be necessary to examine the interior, for which purpose (C) Fig. 2 is presented, in which C₁ is the base half of the protecting shell, C₂ is the detachable half of the same, D presents the dynamo, which connects its armature shaft with the shaft protruding through the case to the pulley, over which the belt B runs. In order to be able to vary the speed of the driving member (the automobile motor) without suffering speed changes of the armature of the dynamo D, a governor G, under the influence of centrifugal force modified by the pressure of the spring S, is then utilized to excellent advantage.

The speed changes, or rather a constant speed of the dynamo armature results from slipping on the clutch faces, F, by variations in pressure on the clutch members. C₄, brought about through movement of the clutch members C₃, under the influence of the centrifugal (weighted) governor G, in view of the action of the spring S. The facing F, is asbestos fabric, and the area of the transmitting surface is so regulated that the speed of the dynamo is maintained at 1,200 revolutions per minute, irrespective of speed changes within all possible limits of automobiles under road conditions of performance.

The pressure of the transmitting faces of the friction members is but slight, it being the case that the output of the dynamo is 60 watts, which is not so very great, in view of the fact that there are 746 watts in one horsepower. It required a good deal of experimenting to arrive at the correct proportions of the governor weights G, and the proper resistance offered by the opposing spring S. The performance will be obvious from what has been said, considering the clearness of the view C, Fig. 2. It simply follows that one of the clutch members is sleeved, which permits axewise motion, but the load on the dynamo being nearly constant, in view of the use of a storage battery, permits of designing the governor so that the slippage on the disc faces will be in conformity with the requirements.

A SPECIAL EXIDE BATTERY IS USED

Referring to (D) Fig. 2, G₁ is the dynamo, looking at the pulley end I₁ represents the measuring instrument which is used to ascertain the potential difference in volts across the terminals of the battery and the same instrument, by suitably manipulating, tells the output of the dynamo or battery in amperes. The battery is shown as B₁, there being three cells within a suitably contrived hard-wood case.

The battery has been especially designed with a view to compactness, relatively light weight, and high watt efficiency. The life is guaranteed for three years under the conditions of operation as fixed in this system. This long life comes primarily through the adaptation of a special and particularly well-built battery, but the fact that it is "floated" on the circuit influences the life situation very materially.

This system of lighting affords the widest range of service, eliminates all other forms of illumination when it is used, because the battery has ample capacity to furnish current to tungsten lamps for head and side lights, as well as a tail lamp, for several hours, if the occasion requires, so that if the automobile motor is shut down for any reason, the lighting goes on without diminution of intensity, which condition would obtain for many hours, even under the most unfavorable conditions.

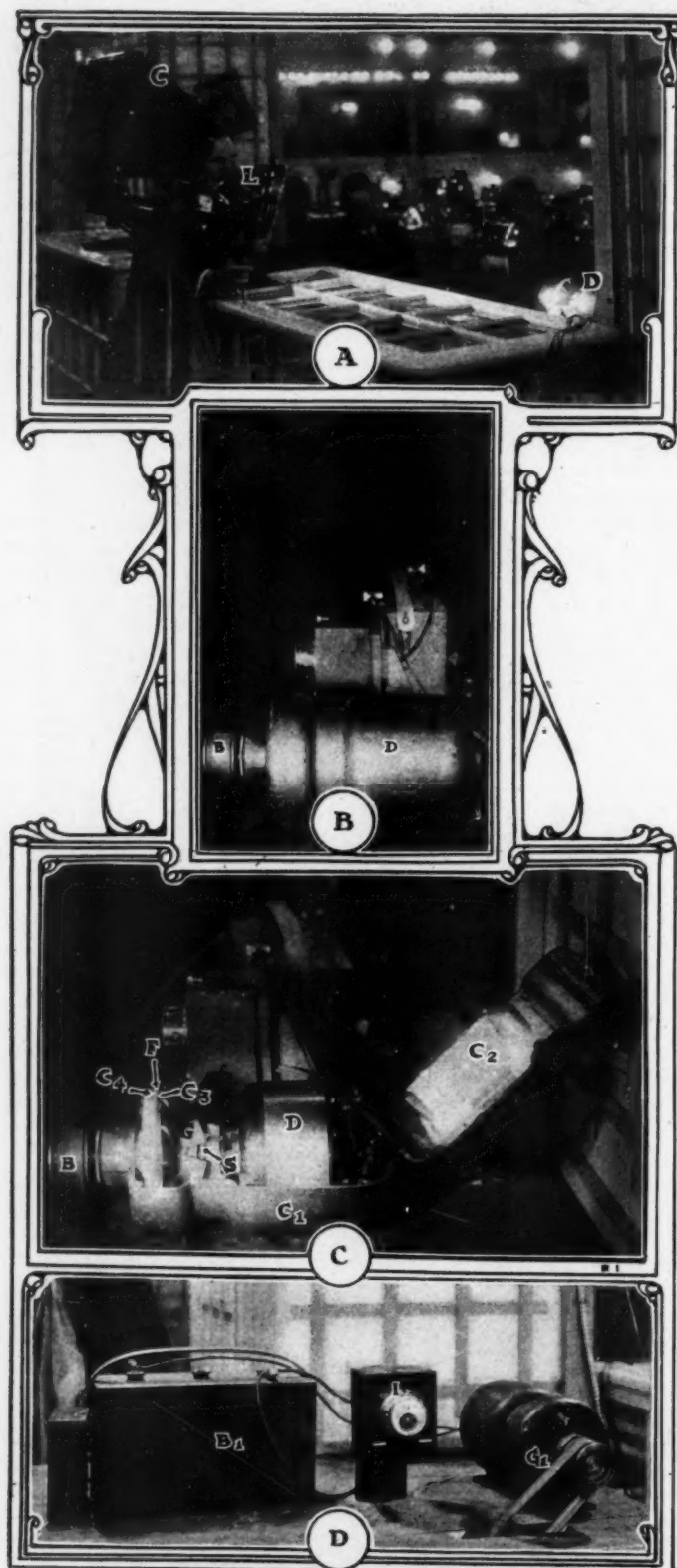


Fig. 2—(A) Presents Gray & Davis electric lighting system in operation aiding the camera
(B) Shows the exterior of the generator offering evidence of adequate protection
(C) Portrays the generator with the cover off and a view of the governor and speed regulating mechanism
(D) Depicts the Exide battery and measuring instrument

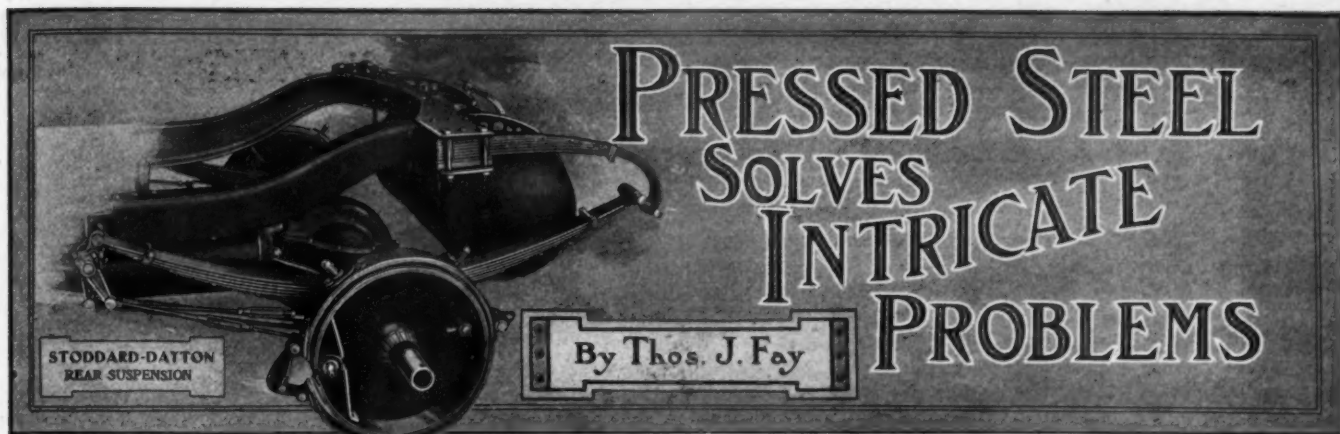


Fig. 1—Rear suspension of Stoddard-Dayton cars with 3-4 elliptic springs, and a shackle bar system of holding

FABRICATED materials differ from castings in important particulars, and while quality of material, that is to say, its chemical composition, is important, even so the extent of fabrication must be taken note of when an attempt is made to take an inventory of quality.

The difference between fabricated steel and steel castings is represented by the amount of work done upon the castings in rolling or forging. Direct steel castings are made by charging crucible pots, or Bessemer furnaces, and when the charge is brought up to the proper heat it is first poured into ladles and then transferred to moulds, the moulds being substantially the same as those used in gray iron foundries.

In the production of fabricated steel the ingots are first produced and they, after being suitably manipulated, are rolled or forged into the desired shapes. It will not be the purpose here to delve into the processes employed in the production of steel, but the above will be enough to show that, as before stated, the difference between a casting and fabricated steel is represented in the amount of work done upon the steel after casting.

If, in working or fabricating steel, it may be improved, which is true, it follows that shapes, as they are employed for different purposes, will have different qualities. This point is adequately brought out in connection with T-rails. When these were of light weight, varying from 40 to 60 pounds per yard, photo-micrograms showed a certain structural condition, which indicated the excellence of kinetic qualities, and the rails proved to be of great longevity in service. As rails were increased in weight, breakages were more frequently noted, and to-day, with rails ranging from 90 to 110 pounds per yard in weight, this question of breakage assumes the proportions of a paramount issue.

It is claimed by the steel makers that there was no substantial difference in the quality of material used, and nearly all rails were produced by the Bessemer process. The differences were directly traced to ills of fabrication, it being true that the heavier weight rails are not subjected to the same amount of work as

that which was put upon the lighter sections in former times.

Structural steel of the various shapes has proven to be of exceeding value, and much of this ability is due to the amount of work which must be put upon the material to reduce it to plate form. Quality of material, as it is reflected by chemical composition, is of moment, but it is not the whole story.

In kinetic work, the life of the steel, according to the best authority, seems to depend:

- (A) Upon the carbon content;
- (B) The carbon condition;
- (C) The extent of metalloids;
- (D) Ratio of other contents;
- (E) Process;
- (F) Method of fabricating;
- (G) Extent of fabricating.

Taking (A), which is a carbon content, Harbord, after making many experiments, proved conclusively that the shock-resisting qualities decreased with increasing carbon. As to (B), which refers to the carbon condition, there is everything to be gained by resolving the same into the best form, considering the service to be rendered, so that heat treatment becomes of the first importance. (C) considering metalloids, as sulphur and phosphorus, they must be very closely held, particularly in flat steel, and it would not be too much to expect that these elements will come within 0.030, but this must not be construed as a license to reduce metalloids by the utilization of a basic process.

Harbord showed, among other things, that steel by the basic process, will not sustain under shock condition to nearly the same extent as will acid steel. Taking the metalloids by chemical analysis then, is not conclusive evidence of quality from this point of view, because the metalloids may be the same in inferior as in superior steel, depending only upon the process employed. (D) refers to manganese and silicon, assuming that copper and arsenic are but a mere trace.

The manganese and silicon contents will differ from the respective products, partly due to process, and, to some extent, with carbon, presence of metalloids, and alloy in elements. It will not be feasible then to discuss the presence of these elements more than to point out that they are suitably regulated under the several conditions of manufacture.

ALLOY STEEL LOW IN CARBON

The presence of chromium nickel, vanadium, tungsten, or other alloying elements, does not seem to alter the main fact, i. e., that carbon must be closely held. Experience in connection with the utilization of alloy steel is relatively limited, and the automobile has been at the bottom of this activity, more perhaps than the influence of any other art, not forgetting that armor plate and projectiles were previously (and are now) alloy steel products. There is a considerable difference between the alloy structural steel as used in automobiles and the material which obtains in the production of armor plate and projectiles.

The very difference between the composition of a projectile

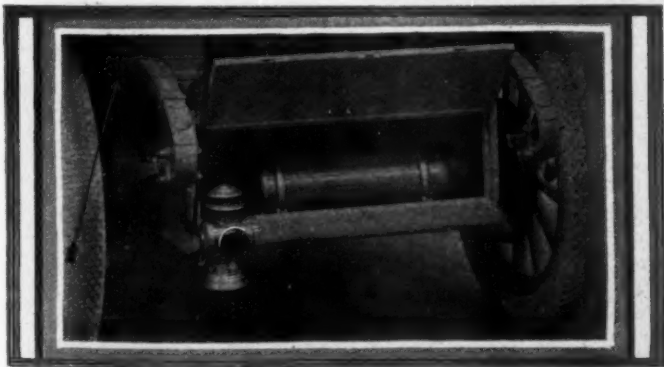
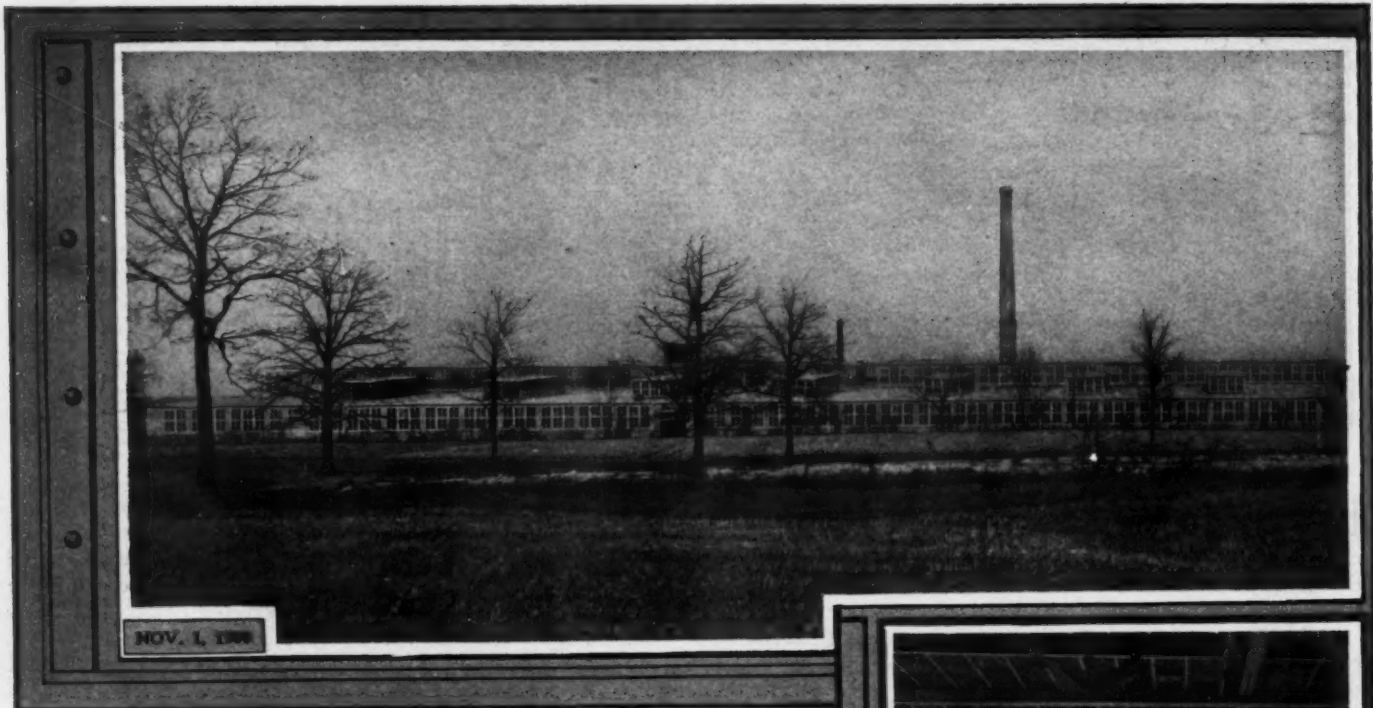


Fig. 2—Rear suspension of Pierce-Arrow cars with 3-4 elliptic scroll springs, flush with the side bars



and that of an alloy steel-side frame, as used in automobiles, will best illustrate one of the points to be here made. The projectile must be intensely hard, and yet it is expected to disrupt into fragments at the propitious time. The automobile side frame must be strong, but it is not expected to fracture if it is subjected to a load greater than it can sustain. The projectile is high in carbon, and if it is a chrome product, it will be very high in chromium also. The automobile frame will be very low in carbon, and if chromium is present, it too will be relatively low.

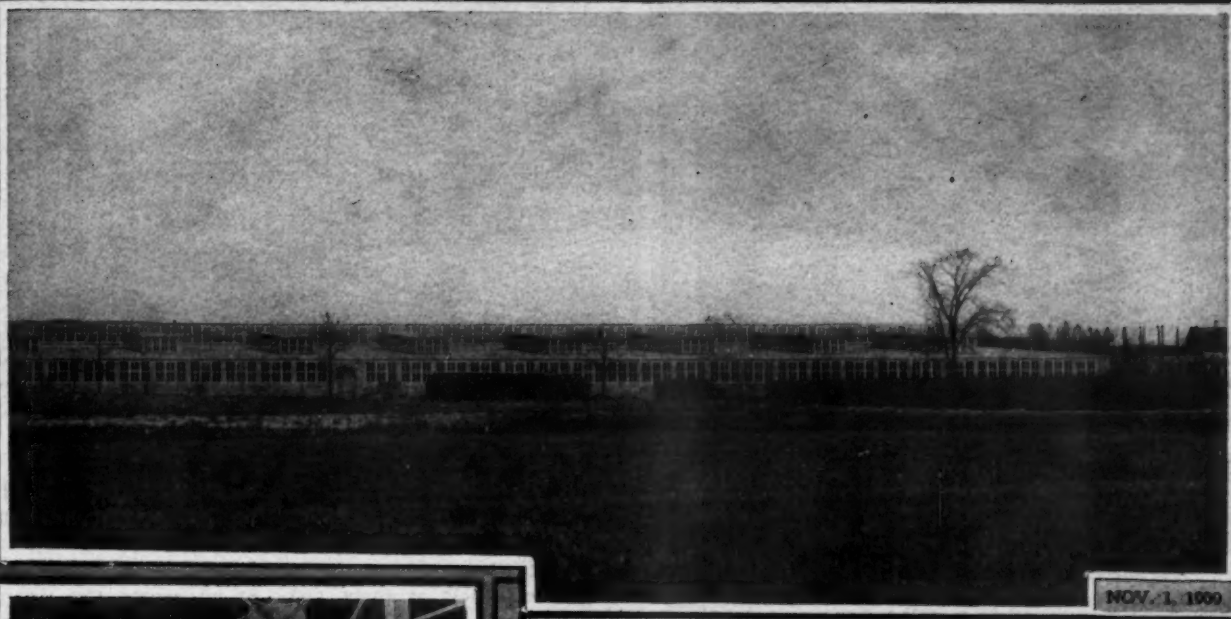
KINETIC ABILITY IS SOUGHT AFTER

In pressed steel work, as it obtains in the automobile zone of activity, every effort is made to induce kinetic qualities and to bring the elastic limit of the material as near to the tensile strength as possible without depressing elongation, as it is measured in a given length, say, eight inches in flat plates. The behavior of the material has to be considered as it relates to heating, drawing, pressing, or otherwise forming, and if the steel is to be worked up whole, it must have qualities to correspond, whereas, if it is to be worked under high heat this question must be taken into account as well. The quality of any piece of steel may be initially good and be ruined, in heating, due to a mal-temperature.

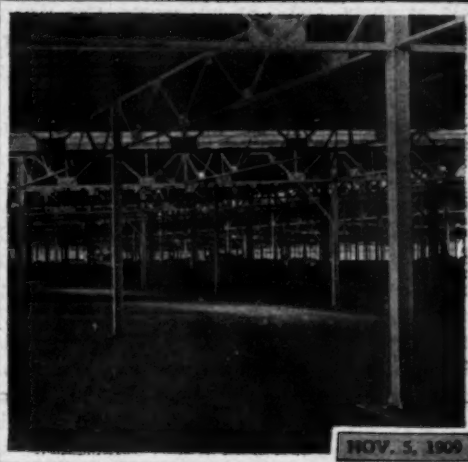
A considerable percentage of material, as it is used in automobiles, is probably in accord with the A. L. A. M. specifications, which, for side frames, may be stated as follows, on the opposite page:



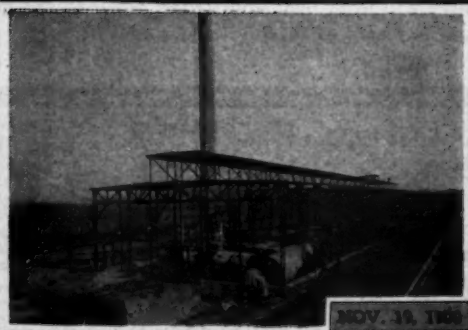
Fig. 3—New A. O. Smith plant, at Milwaukee, Wis., devoted to the



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ALLOY STEEL FOR PRESSED FRAMES Chemical Composition

Chromium, 0.50 to 1.00.
Nickel, 1.50 to 2.00.
Carbon, 0.20 to 0.30.
Manganese, 0.40 to 0.60.
Sulphur, 0.04 maximum.
Phosphorus, 0.04 maximum.

Physical Properties

Tensile strength in pounds per square inch, 80,000.
Elastic limit in pounds per square inch, 45,000.
Elongation per cent. in two inches, 20.
Reduction of area per cent, 40.

Physical condition, annealed.

The same steel, when subjected to the treating process, will perform as follows:

Physical Properties

Tensile strength in pounds per square inch, 150,000.
Elastic limit in pounds per square inch, 100,000.
Elongation per cent. in two inches, 8.
Reduction of area, per cent., 35.

Frames of this material are hot pressed, and in the heat treating process are first quenched in oil, after which they are partly annealed, the idea being



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production of pressed steel, transmissions, steering gear, etc.



Fig. 4—Pressed steel brake drum, as used on the Cole 30, with a flat steel band in constricting relation

to fetch up the elongation to the point as given, as a minimum value. If the quality of the steel is up to specifications, physically and chemically, when in the annealed state, it should perform as noted when it is properly heat treated.

Many of the best examples of chassis frames, as they occur in automobiles, are made of this class of material, and here the strength is adequate for every possible need, although it has been found that the use of material of this character does not warrant diminishing the weight of the section employed, because it has not been shown that chassis frames of the customary channel section and weight per unit length, when made of Bessemer plate, were sufficiently strong to serve under certain conditions. The introduction of alloy steel, then, was not for the purpose of reducing weight, but it was with the intention of bringing up the strength to meet the most severe requirement. This view is not generally well understood.

SILICO-MANGANESE STEEL FOR FRAMES

Chemical Composition

Carbon, 25 to 35 points.
Manganese, 1.50 to 2.00.
Silicon, 0.75 to 1.00.
Sulphur, 0.035 maximum.
Phosphorus, 0.035 maximum.

Physical Properties

Tensile strength in pounds per square inch, 120,000.
Elastic limit in pounds per square inch, 80,000.
Elongation, per cent., in two inches, 15.
Reduction of area in per cent., 40.
Condition of test proof, annealed.

This steel, when quenched in oil and partly annealed, should test as follows:

Physical Properties

Tensile strength in pounds per square inch, 160,000.
Elastic limit in pounds per square inch, 120,000.
Elongation, per cent., in two inches, 10.
Reduction of area in per cent., 30.

This steel as a type is much used in chassis frames and is frequently employed for springs. In the frame stock as it comes from abroad the carbon is somewhat lower, possibly 10 points, and the silicon is frequently considerably lower, whereas the manganese is held at about 1.60. At all events, this material ranks relatively high and many automobile engineers prefer it to the alloy steel or side frames as hereinbefore mentioned.

TYPES OF CARBON STEEL MUCH USED

Cold-pressed side and lateral members are generally of carbon steel, and generally the carbon content in this type of steel, for this class of work, runs well below 20 points, and 10 points carbon seems to be the prevailing limit. In some of the very excellent examples of carbon steel-side frames government specification boiler plate is used, and experience rather goes to show that this material, when used in sufficient presence, is entirely satisfactory for the purpose.

Government specification boiler plate, besides having carbon approximating 8 points, is an acid open-hearth product, with sulphur and phosphorus below .04, with well-regulated silicon and manganese. The tensile strength is not remarkably high, but the elastic limit approximates 55,000 pounds per square inch, and the elongation, in 8 inches, is better than 24 per cent. A specimen of this steel will bend over and flatten down to 180 degrees without showing any sign of fracture, and a silky structure exists.

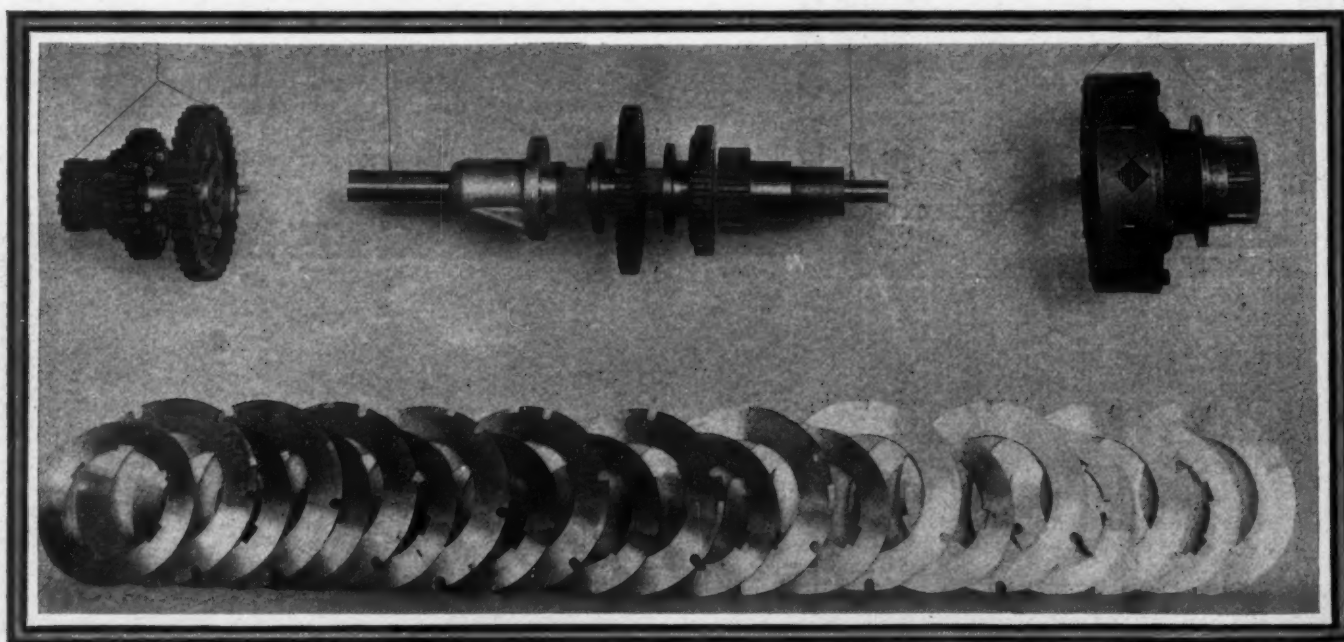


Fig. 5—Discs of stamped steel, as used in the clutch of the unit power plant in Demotcars

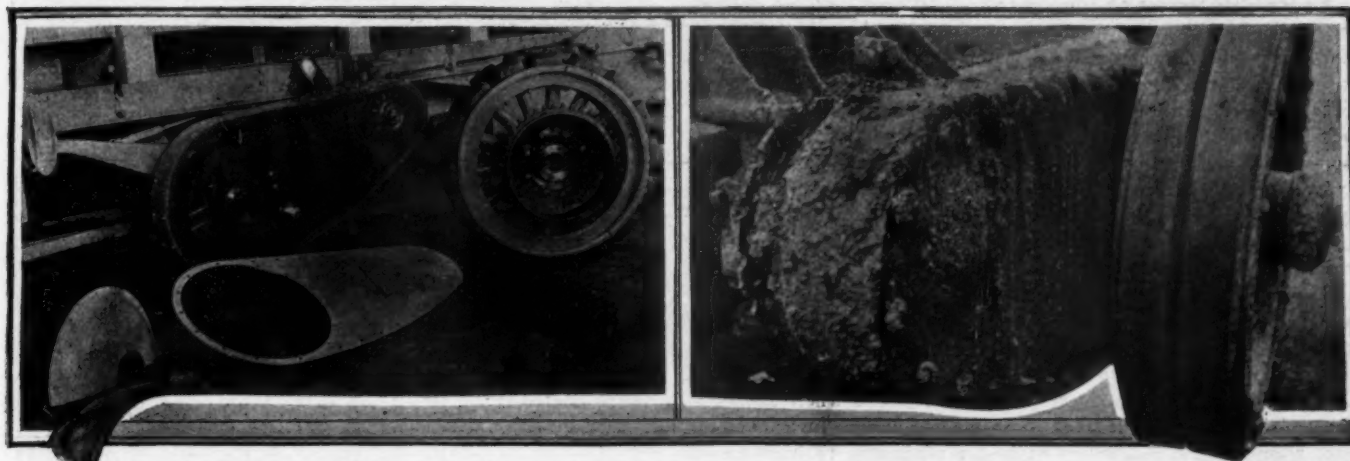


Fig. 6—Pressed steel chain boot, dissembled and in service, as used on Alden-Sampson trucks

In some of the earlier efforts Bessemer plate of a very ordinary grade was cold pressed into side and cross members, and frequently fracture was brought about by a 90-degree bend at a 3-8-inch radius of a 3-16 thickness of plate. This class of material failed in service, and frequently the failures were disastrous. It was probably the original basis for a considerable effort in the direction of universal joints, inasmuch that in the earlier types of automobiles, the respective units were mounted upon the chassis frame and an attempt was made to join these units into power relation without introducing flexible members.

Chassis frames of this character deflected under the load and the rigid relations of the units, which made up the power and transmission system, led to early trouble in the life of these cars in service. Designers desiring to get away from this trouble formed the habit of introducing universal joints, but in the meantime the incentive was there for improvements in chassis frame work, and in the long run it was found that no chassis frame, however made, could be regarded as sufficiently rigid to serve as a machinery platform with several machinery units in rigid relation.

UNIVERSAL JOINTS DESIRABLE IN ANY EVENT

The later introduction of special grades of steel in the chassis members eliminated troubles in the chassis itself, but tests soon showed that there was a certain amount of deflection under stress, due to road conditions and to the very flexibility which was courted by the utilization of fine grades of material. Under the circumstances it was found desirable to retain universal joints, the principle of the three-point suspension, and all the other methods which would permit the machinery units to operate with freedom, despite deformations due to shock brought about by high speed and considerable road undulations.

Excepting for a few examples of wood chassis frames, as in the Franklin (which is laminated) and in the Brush, not forgetting the armor type of wooden frame as used in the Panhard-Levassor, chassis members are almost invariably of the channel section and relatively deep, involving the flanging. Considering channel sections, there are classifications as follows:

- (A) Straight side members.
- (B) Narrowed in front.
- (C) With a rear kick-up.
- (D) With a rear kick-up narrowed in front.
- (E) Underslung.
- (F) Underslung narrowed in front.
- (G) The several types with subframes.

Straight side members (A) were formerly much in vogue, but owing to the increase in diameter and sections of tires which are now used, it is extremely difficult to realize a sufficient canting angle of the steering road wheels, without having the chassis members closed in considerably more than usual.

With side frames, which are straight on the top edge, they are frequently narrowed (B), in order to afford an adequate canting angle of the road wheels, and in such frames with a view to

offsetting the weakening effect at the narrowing point, the flanges are made somewhat wider and crossarms are placed to support the cranking moment.

Frames (C) with a rear kick-up (drop frames) are so made in order to bring the running board on a line with the curb and to have the height of the step from the running board to the side entrance that which is convenient. It is also claimed that the center of gravity is lower in these types of cars, but it is highly improbable that the difference is very great, because the power plant and transmission system will be a distance from the ground which is dictated by the diameter of the flywheel, considering the desired road clearance. To illustrate this point, it is only necessary to say that the axis of rotation of the power members will be 18 inches from the ground if a 16-inch diameter flywheel is used, and if the road clearance is 10 inches. This clearance requirement, considering the diameter of the flywheel as used in any given case, comes very near to fixing the center of gravity independently of the type of chassis frame employed. The condition (D), which calls for a narrowing at the front-side frame with a kick-up in the rear, obtains in nearly every case, although there are one or two examples to the contrary.

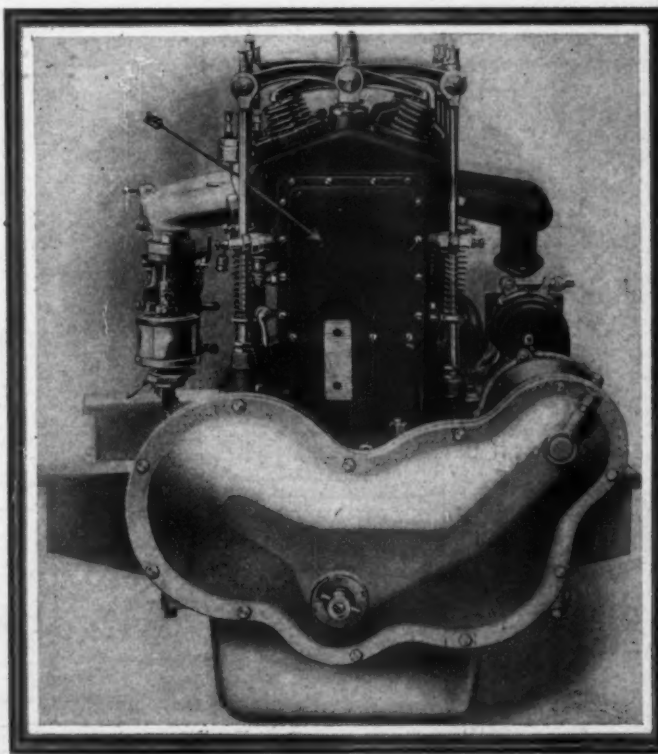


Fig. 7—Stoddard-Dayton motor, with pressed steel covers over the openings of the cylinder water jackets

Underslung frames (F) are narrowed in front, and, as utilized in connection with American cars, such as the American Tourist and other types by the same makers, take into account the use of large diameter road wheels, thus permitting the chassis frame to pass below the axle and allowing of ample vertical clearance besides the necessary ground clearance. So it is that the general appearance and performance of these cars is commendable. This type of frame was originally brought out for racing work and, barring the influence of a body, it induces a lower center of gravity, while the large diameter road wheels makes for easy riding qualities.

Subframes (G) are used in a considerable number of examples and it has always been claimed by a certain school of designers that it is a particular advantage to place the machinery equipment on its own independent subframe. The length (span) of the motor support arms is considerably reduced when the subframe is employed, and, since the arms are almost invariably of cast aluminum, it is claimed to be an advantage to have them relatively short. Since the subframe does not have to interpret the stresses, which play on the side frames through the springs, there is just a chance that this same subframe acts as a more stable machinery platform than does the side frame.

IN THE MANUFACTURE OF CHASSIS FRAMES

Work of this character is now conducted in a large way in plants especially fitted out for the purpose, and special heats of steel of a required composition for each type of material are ordered in such vast quantities that quality is very readily obtained on a basis of proven quality.

The material comes to the pressed steel mills in flat sheets of the required thickness, specified as to width, and sufficient in length to turn out the members to be made with very little waste, frequently without any trimming at all. If the work is to be done cold, which is a matter depending upon shape and the quality of the material to be used, the sheets are cut to approximately the right area, and through the use of suitably formed

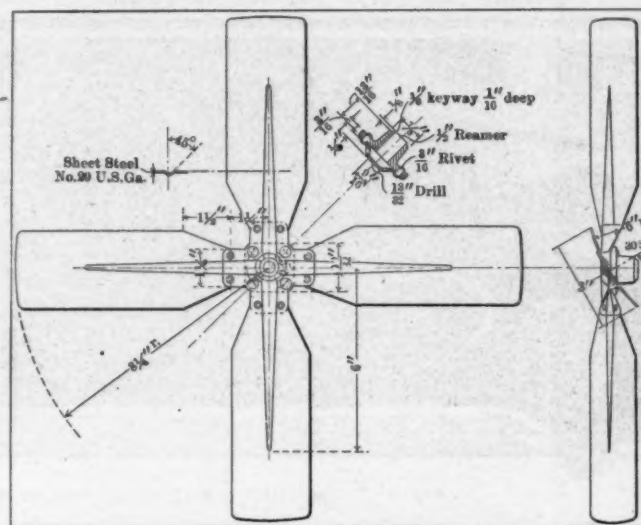


Fig. 8—Premier fan, with four blades of pressed steel, ribbed and beaded for strength

dies, which are fixed in the presses, the sheets are pressed into the required shape, generally in one operation, although some of the intricate cross-member sheets have to go through two or three operations and in many cases hot.

If the material is alloy steel, either with chromium nickel or vanadium, the work must be done hot, in which event the sheets, after they are trimmed to the right size, are brought up to the desired heat in a furnace and then passed to the dies in the press when the final operation of pressing is conducted—generally in a single operation. From the press the members go to the heat treatment room where they are raised to a correcting temperature, then quenched in oil, and subsequently annealed in order

to increase the elongation and bring up the other physical properties to conform to the original specifications, unless, under conditions of great skill, better results are evolved.

When the work is done cold, as it is with carbon steel, instead of oil quenching and annealing, the members are corrected by a simple annealing process, excepting in the cases of superior grades of specification carbon steel.

When the side bars and cross members are heat treated or otherwise completed in the absence of a heat-treated operation, they are then trimmed and put into final shape for assembling, which includes making the holes for rivets in some one of the ways as follows:

- (A) Punching.
- (B) Punching and reaming.
- (C) Drilling.
- (D) Drilling and reaming.

In this work special machine tools are used, among which pneumatic riveting equipment occupies the prominent place. The rivets are invariably very low in carbon for the content, and of a grade of material which will stand much heating abuse without showing deterioration. In hot riveting, as in the Cadillac and numerous other examples, advantage is taken of the shrinking of rivets when they cool. This pulls

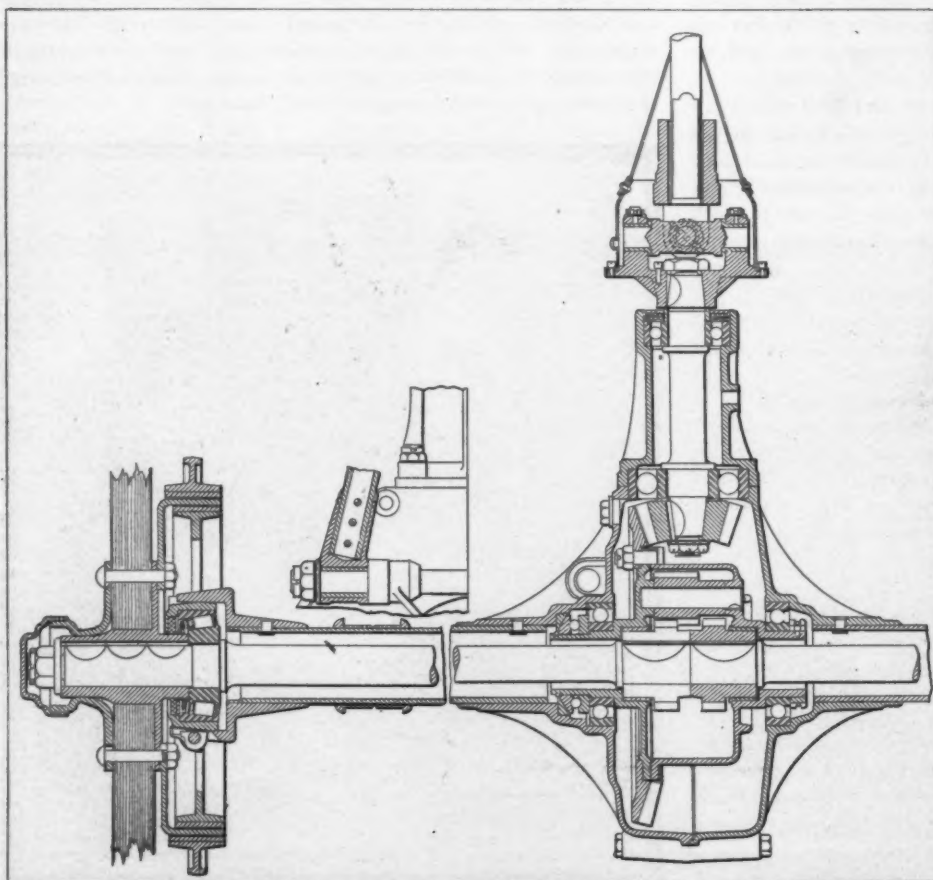


Fig. 9—Drawn steel brake drum and housings for universal joints, as used in Pierce-Arrow live rear axles

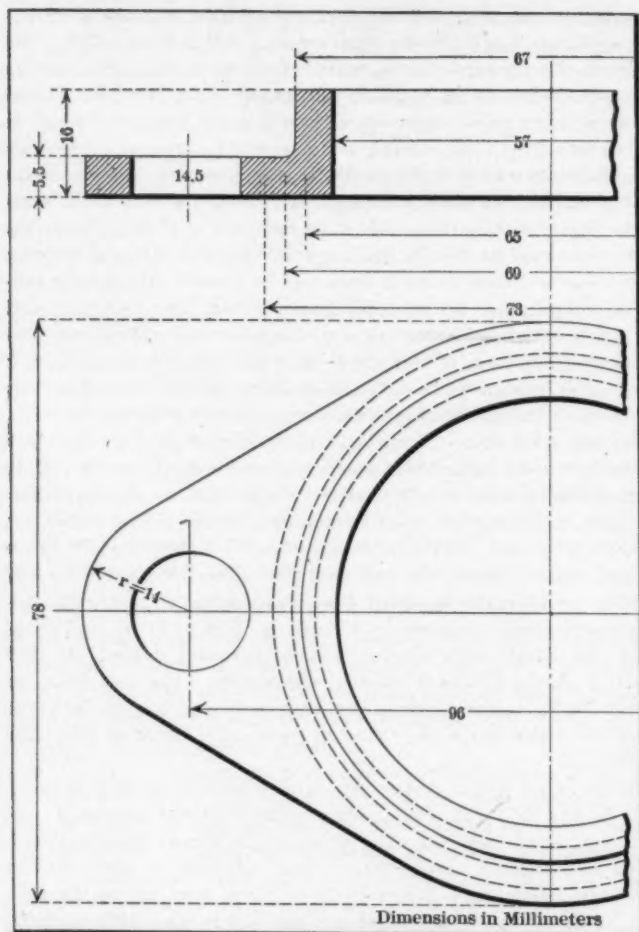


Fig. 12—Pressed steel flange for use with inlet and exhaust manifolds of motors

tween 0.20 and 0.30, nor does it seem to make much difference if oil is allowed to spread over the surfaces under certain conditions.

For illustration: In Premier cars the shoes are provided with cork inserts, and it is the usual practice there to apply grease to the drum faces, experience proving that the results are even better than they would be otherwise. The surface available for Premier brakes is something over 500 square inches, and it seems to be a property of cork to work quite as well with lubrication as

without it. With such a large surface over which to spread the pressure, the brakes take hold softly but with great promptness, while the cork, being in sufficient presence, scrapes the grease from the pressure surfaces just as a rubber scraper removes water from a plate glass when the workman is cleaning windows.

Considering brakes: In the Marmon cars the drums are very wide, there being two sets of brakes side by side, and these drums being of pressed steel, of good diameter and suitably shaped, afford a large surface for the brake shoes. Nor do the drums show a noteworthy tendency to flare out, as they would were they of bronze.

Steel castings are used to some extent in brake drum making, but it is scarcely to be expected that the cost of the drums will be so low as when drawn steel is selected. The steel castings work very well indeed, although it has not been found in side chain drives, when the sprocket teeth are cut out of the steel castings, that they are not sound in every case. The enlargement which must be formed on the periphery of the casting to allow for cutting the teeth for the chain is very prone to cause trouble, owing to shrinking phenomena during the process of cooling of the castings, excepting in establishments of great competence, in which this class of work is dealt with continuously.

Brake drums in the best examples of the day are from 12 to 16 inches in diameter, made of drawn steel, and are either integral with the hubs or flanged and bolted to the hub-flange proper, in which work the same bolts which are used to clamp the wood at the miter act as the flanging bolts for the drums. In shaft drive cars, and in view of the absence of sprocket teeth, steel castings serve very well indeed, and they frequently offer special advantages, it being the case that the design is such as to indicate their use. The steel castings are a little more rigid than drawn steel; the carbon content is much higher in the metal, and in view of this the hardness of the metal is greater. Some of the steel foundries make a specialty of this class of work, among which Isaac Johnson & Company, New York City; Lebanon Steel Casting Company, Lebanon, Pa.; Thomas Prosser & Sons, New York City; Henry Hess, Philadelphia, Pa., and others, may be mentioned.

RAMBLER CUP AND CONE BALL BEARINGS

Cup and cone ball bearings are pressed from high-carbon plate, or they are case-hardened after being pressed from a suitable grade of cementing steel in which the carbon is very low, possibly as low as eight points. In the Rambler plant at Kenosha this work is conducted on a considerable scale, the facilities there being adequate for every need, and this is one of the plants which, primarily devoted to the making of automobiles, also

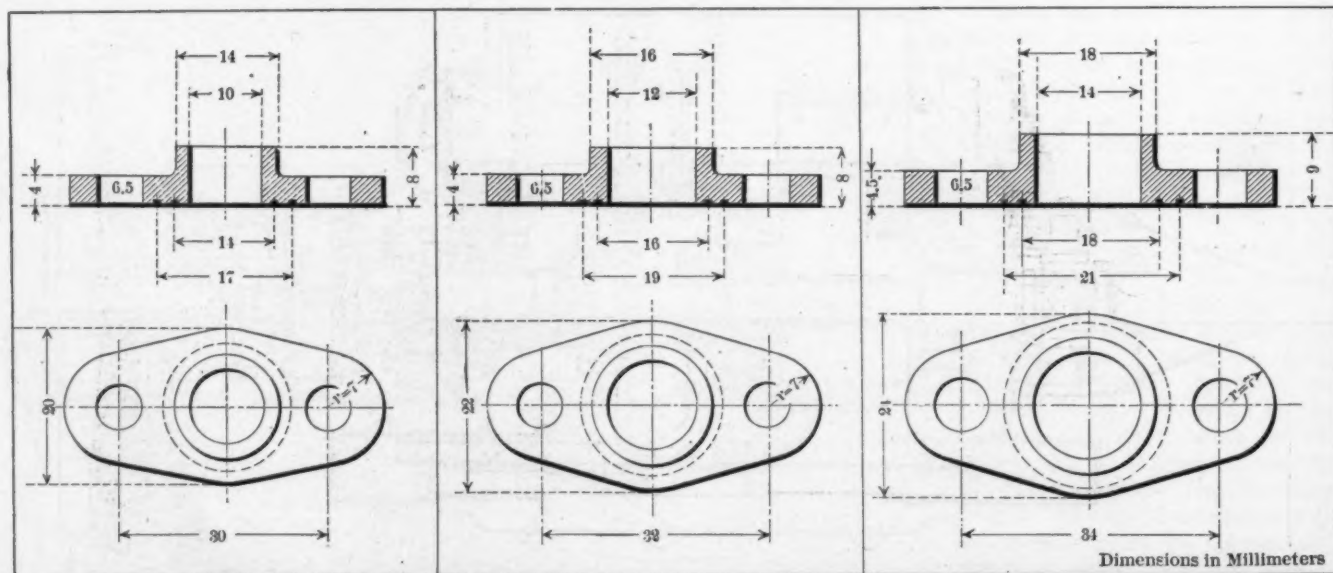


Fig. 13—Pressed steel flanges for use on motors in connection with water and gasoline piping reducing weight and adding quality

turns out all the anti-friction bearings used. The cup and cone bearings, of which there are a few excellent examples in Rambler cars, are also examples of pressed steel work. They are made from sheets of cementing steel, which are first reduced to the right blanking size, then pressed into the desired shape to produce cups or cones, after which they are heat treated.

In the heat treatment the cups and cones are first packed in hardening powder, which is largely ground bone, and the boxes of packed caps and cones are then placed in the cementing furnaces, raised to a cementing heat and allowed to "stew" for a length of time sufficient to grow a depth of dense carbon which will be sufficient for the needs. This growth of carbon will be a full thirty-second of an inch before the boxes will be removed from the cementing furnaces, and when they are withdrawn the mass of cups and cones are quenched in a bath for the purpose, thus rendering them nearly as hard as diamonds.

After cementation, the carbon in the shell is about 170 points, whereas the carbon in the core remains that of the original analysis of the metal, which is, say, ten points. After quenching the parts are tempered to impart dynamic qualities. They are then ready to go to the grinding department to be finished. After grinding, the cups and cones are almost exact to size; the shell is highly polished all over the surface, and the hardness is that of the hardest steel balls, while the depth of the hard shell is 1-32 inch approximately. Under the hard shell is the relatively soft core; the shell rests on this core just as a frozen lake, so-called, has a sheet of hard ice over a cushion of water. The ice is stronger for the elastic support, it being impossible to deform it at a local point, as pressure is applied the ice bends, but the bend is spread out over a considerable area, and the extreme fiber strain is minimized.

PRESSED STEEL IN TIMKEN ROLLER BEARINGS

That pressed steel is limited to its application to cup and cone ball bearings is not to be held as true. It is employed in Timken roller bearings for the purpose of separating the rollers, the spacing member being a stamping in one piece from mild steel, and of a shape to be admired. In several of the examples of roller bearings, for that matter, the end spacers are of pressed steel, they being in the shape of washers.

REAR AXLE HOUSINGS NOW OF PRESSED STEEL.

When the Ford car first came out the rear axle looked rather light, considering the type. In those days all live rear axles were of cast housing members engaging Shelby steel tubing. A closer examination of the Ford axles disclosed the construction—that of a drawn steel tube, which in appearance was a good imitation of a blunderbus of Colonial days. The tube started near the road wheels with the usual tube diameter, and as it approached to the differential gear system it was flared out to a sufficient radius to pass over, bulb-like, thus forming a housing for the differential gear and bevel drive.

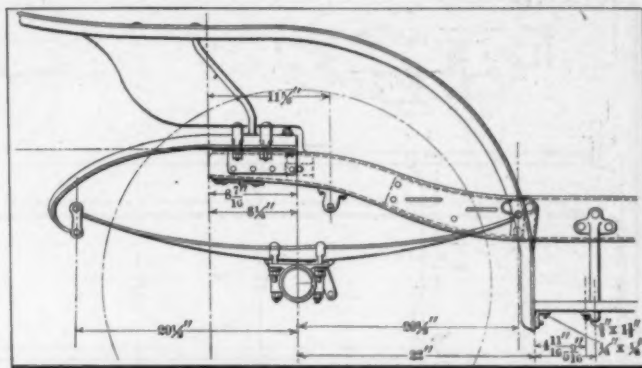


Fig. 14—Rear end of frame of Pierce-Arrow 6-36 Runabout, showing fastenings of 3-4 elliptic scroll springs

This idea of Ford's possessed the advantage of great strength; the material used was highly kinetic, and the weight complete was all that it should be. Prior to this innovation of Ford's it was proven in side-chain work that rear axles should not be heavy, and in racing, as it thus obtained, in which I-section axles were used with side-chain drives, designers reduced the weight of rear axles of 60-horsepower cars down to as low as 36 pounds.

This construction proved to be good, and the Fiat people,

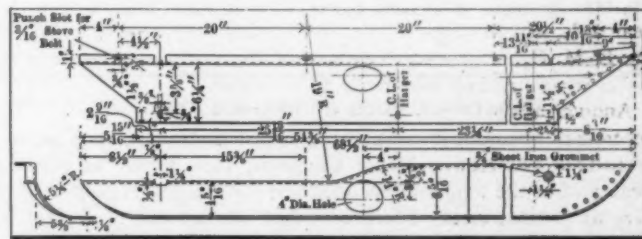


Fig. 15—Chalmers-Detroit mud shield, reaching from chassis frame to fenders

taking kindly to the idea, utilized the scheme, making some deviations from that as shown by Henry Ford. The drawn steel scheme, like every good construction, survived, and last year the Timken type of drawn steel axle was used on many automobiles, in which type the bell-shaped halves terminate in such a manner as to allow of the removal of the differential gear system, including the bevel drive. As a unit they nested within the confines of the drawn steel shell. This type of axle, like the Ford, has proven to be a diamond of the first water, and the Standard Welding Company, Cleveland, Ohio, make a specialty of the drawn steel as it is used in this class of work. As a matter of fact, one of the best attractions in the E. M. F. cars when they were launched on an unsuspecting public was this type of live

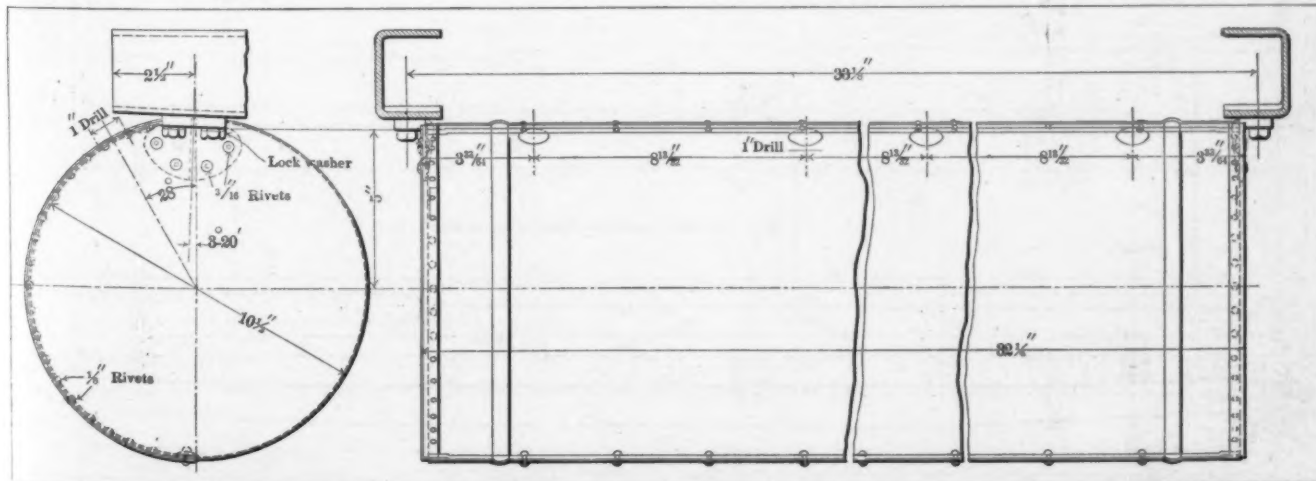


Fig. 16—American Simplex muffler shield, which protects the muffler in its position at the rear of the chassis

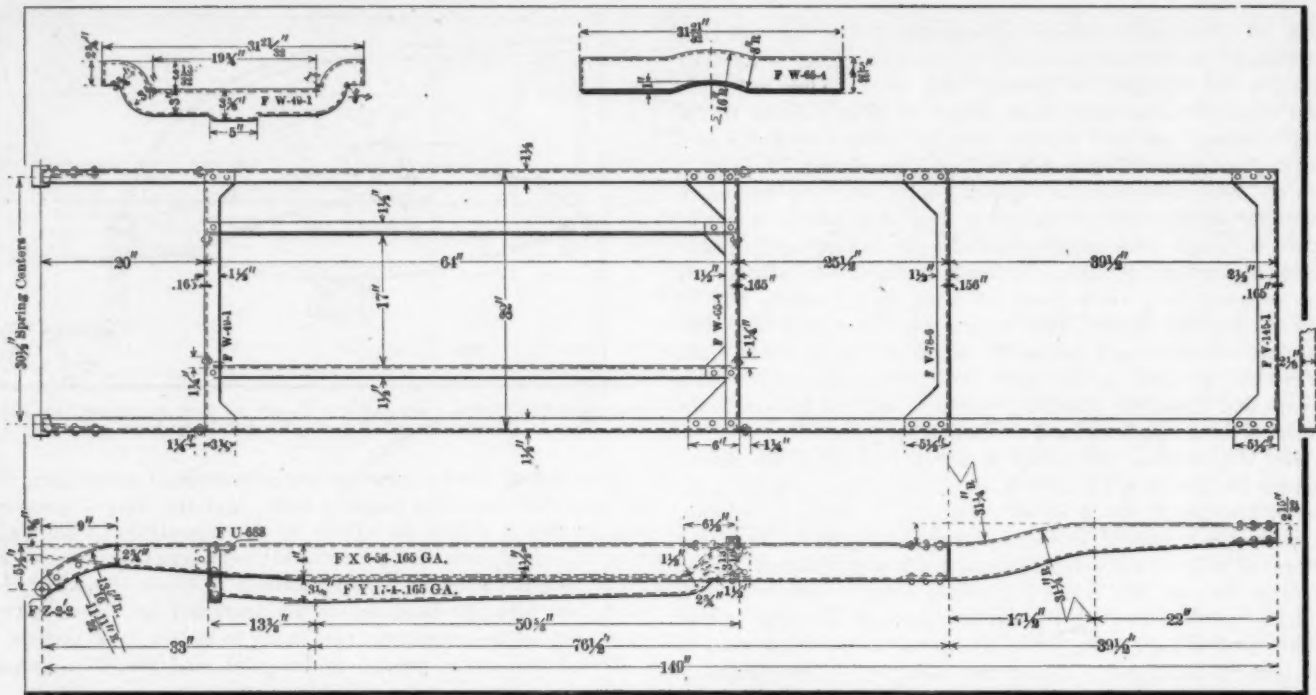


Fig. 17—Example of chassis frame with straight sides, a kick-up at the rear, and a subframe for the power plant made at the A. O. Smith plant

rear axle, and it proved to be one of the permanent features in the E. M. F., adding materially to its value.

DISTANCE RODS OF PRESSED STEEL

Another advanced investigator, Edward R. Hewitt, even before he formed the Hewitt Motor Company, took kindly to pressed steel, and in the long run the distance rods in the Hewitt trucks were of pressed steel. Moreover, they worked out to the entire satisfaction of users. It is better to put it this way, since design-

ers may be satisfied without convincing users. In the Hewitt truck work the distance rods are of pressed steel, flanged and tapered, with neutral metal blanked out, and at the chassis frame end the female of a turnbuckle is riveted on; the other end is flanged to a bearing member, which in turn engages the rear axle in the right relation.

In some of the shaft-drive cars the radius rods are of pressed steel, one end of which members is flanged to the axle housing,

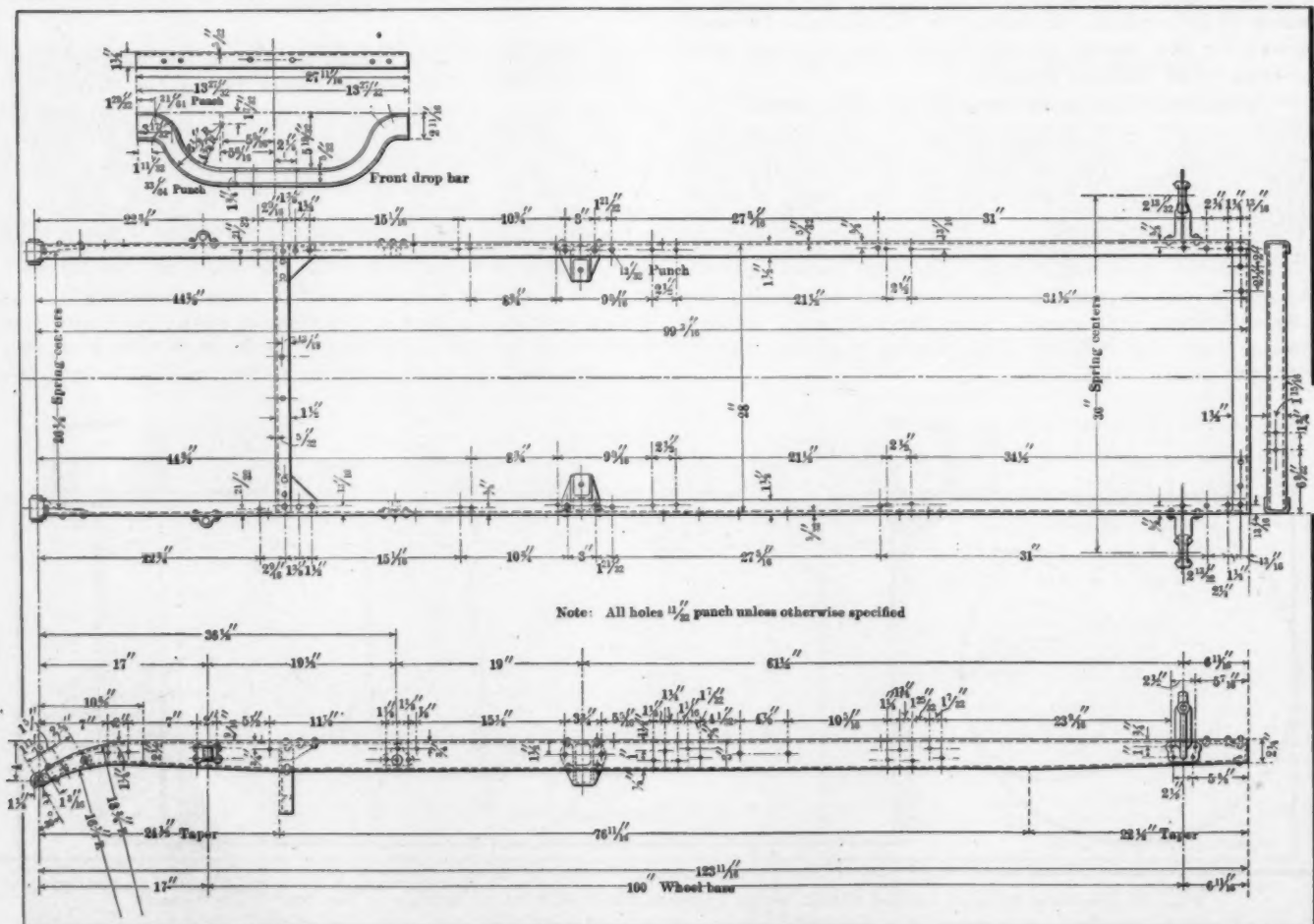


Fig. 18—Metzger frame, plan and elevation, with straight front and rear, and hangers for full elliptic rear springs

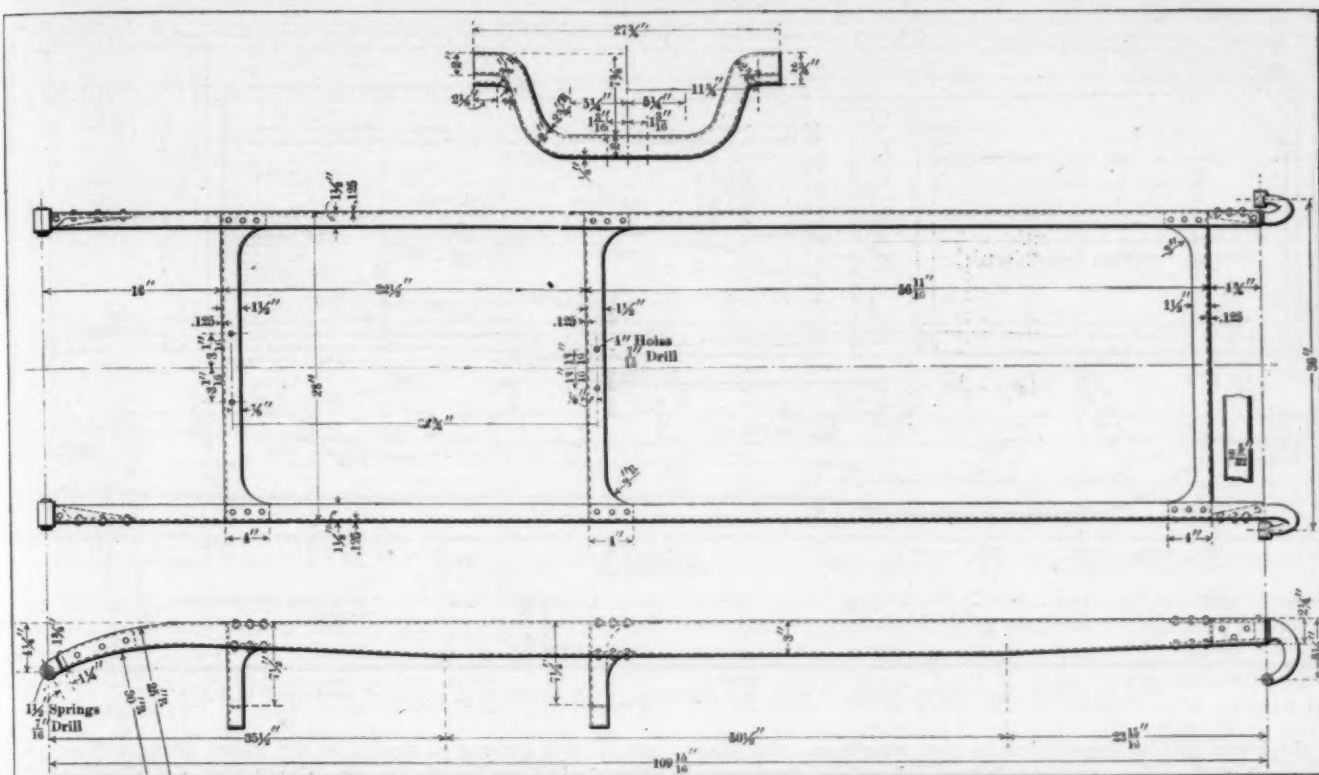


Fig. 19—Demot frame in plan and elevation, with straight front and rear, for semi-elliptic springs, and deep cross-bars

and the other end terminates at the universal joint, in suitable relation with the cross-member there placed, to take the torsion and thrust. This class of work has the virtue of being light; the strength of the material is in the plane of the work, and the general appearance is that of bridge building; bridges compel respect; they outlast man.

Housings for universal joints, which were formerly of castings, are now of drawn steel, and they offer advantages in several ways, among which are lightness, strength and neatness. Then there are covers for the bearings of transmission gears, they being formed in dies from mild steel, and when finished afford all that the situation indicated, besides having the virtue of being lighter, stronger, and at a far less cost than that of cast brass.

MOTORS HAVE PRESSED AND DRAWN STEEL

When water jackets have covers over them, the covers are sometimes of cast material, such as aluminum and bronze, but the examples of this class of construction, employing pressed

steel, are growing. The steel work is, of course, lighter; the material used is much more stable than castings, and the finished motors look much neater. In some motors the crankbox has handholes for the purpose of inspection. They offer the further facility of adjustment of bearings if the occasion requires. The covers, while they were in former times of cast material, are now in some fine examples of pressed steel.

Motor cases, for the top half, either of cast gray iron or aluminum (the iron being now much used), in some of the good examples have pressed or drawn steel for the lower pan. Ford cars came out with this construction a couple of years ago, and while it was then recognized that Henry Ford had forced the hand of the pressed steel makers, it is nevertheless true that the idea was an advanced one, and after events proved that it was founded on good practice.

It is not now uncommon to observe that the lower half of motor cases are made in this way, and since the bearings for crankshafts are supported from the upper half, there is nothing

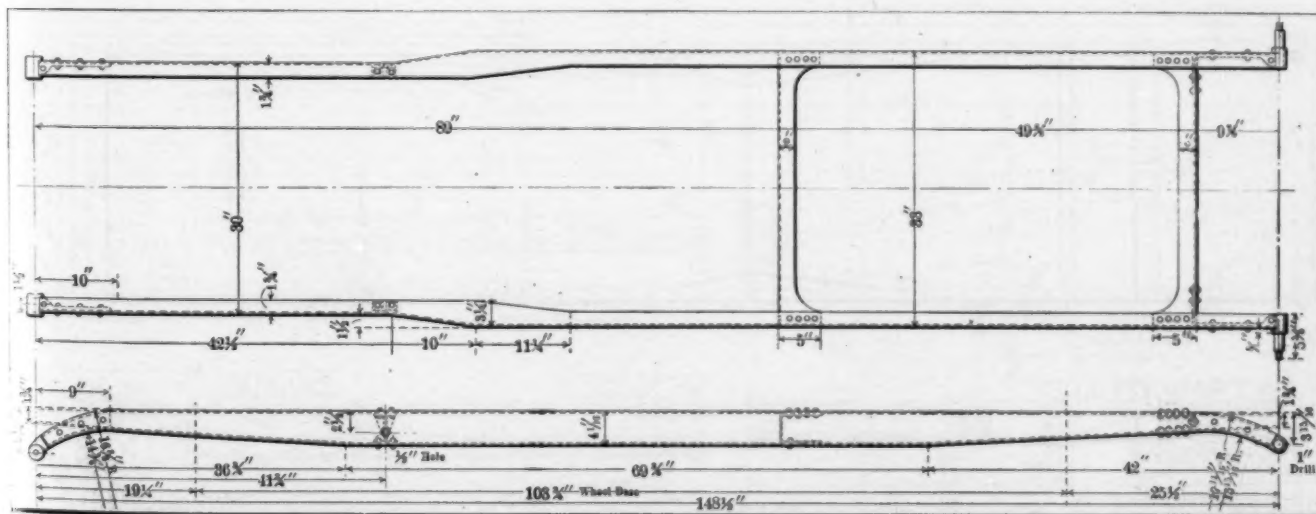


Fig. 20—Plan and elevation of Knox frame with narrowed front, straight rear and hangers for semi-elliptic springs

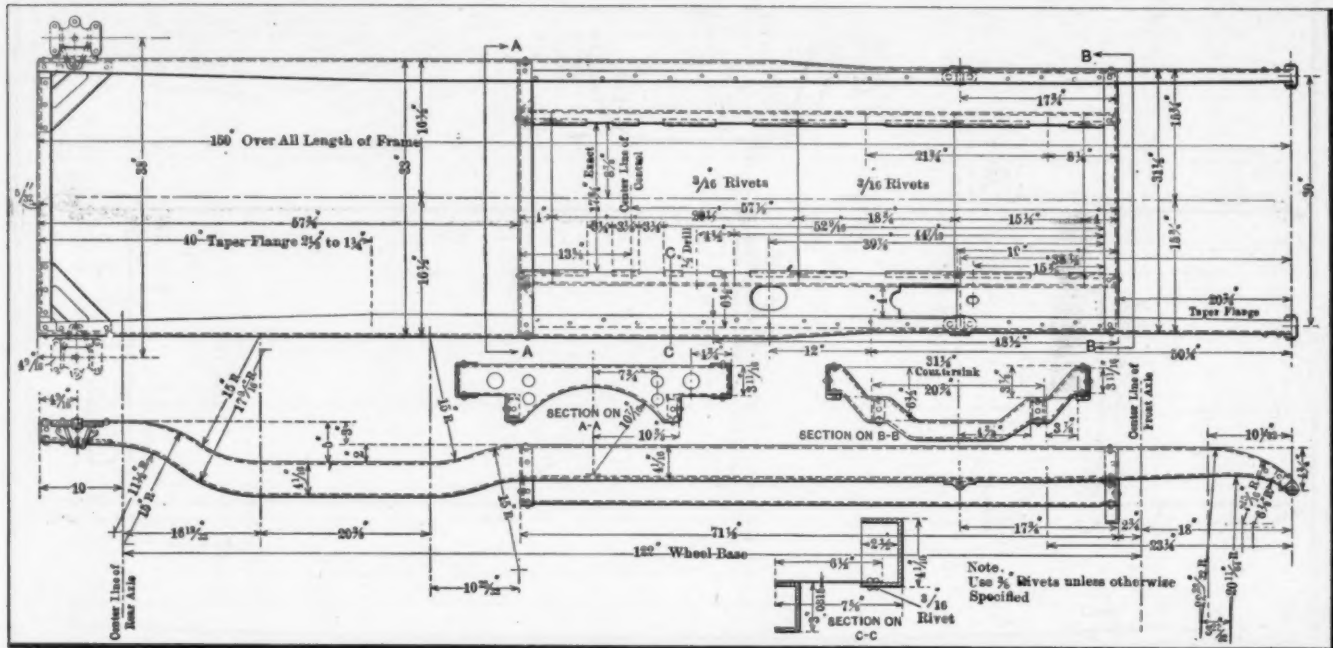


Fig. 21—Chalmers-Detroit frame in plan and elevation, with double drop rear and narrowed in front

for the lower half to support but its own weight and the lubricating oil that makes the foundation for splash lubrication. These pans, if such they may be called, are pressed hot in dies, and while it is something of a job, requiring several operations, the cost is reasonable and the weight of a motor is reduced to a minimum.

NOISE RESIDES IN BELL-LIKE MEMBERS

How to employ thin, bell-like members, and at the same time abort noise, is one of the first-rate problems of designers, simply because automobiles which are noisy will not be taken to kindly. When pressed steel is used:

- (A) For the under half of motor cases;
- (B) Covers for handholes in motor cases;
- (C) Covers for housings of half-time gears;
- (D) Plates over openings of water jackets;
- (E) Housings for flywheels.

The metal being thin, of very rigid steel, and capable of making a considerable sound, must be so applied that this sound will be damped. Some of the designers resort to the expedient of applying a sheet of (thin) lead all over the inner faces of the covers, and in this way all noise is eliminated. To a considerable

extent, if a packing is applied at the joints, noise is done away with, and if the plates are zinc-coated they are relatively still. That this problem is still to be coped with to some extent may be taken for granted, although in the Ford and other examples of lower halves of crankcases there is no trouble, owing to the damping effect of the lubricating oil which rests therein, it serving as a noise-killer as well as for lubrication. It is very likely that an electroplating of lead on one face of the plates would have the effect desired, referring to other pressed steel parts than the lower half of the crankcase, and the plating of lead, while it would act just as does a sheet of the same material, would be more cheaply applied, and less of it would have to be used, so that the added weight would not have to be tolerated to so great an extent.

OTHER PRESSED STEEL MOTOR REFINEMENTS

In Pierce-Arrow automobiles, and in some other makes as well, baffle plates made of pressed steel are placed at the bottom of the stroke in the cylinders, it being the idea to eliminate excesses of splash, and since the connecting rods play in a slot in the plates, and a restricted room is afforded for oil to be sucked by into the combustion chamber. This, as well as serving in the capacity

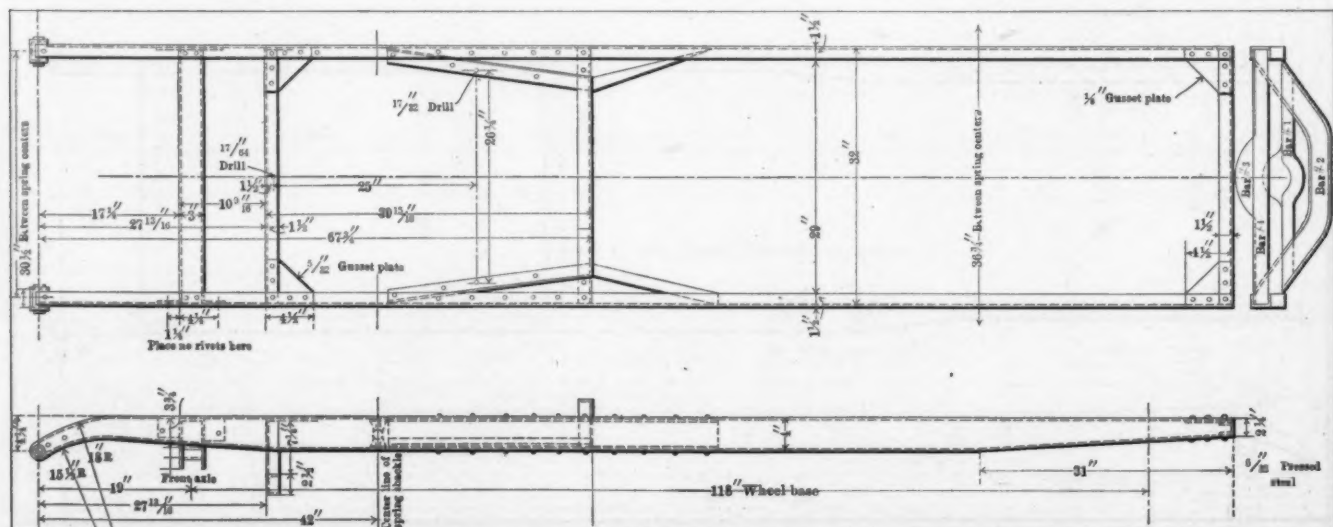


Fig. 22—Inter-State frame in plan and elevation, with four cross members, and side bars straight in front and rear

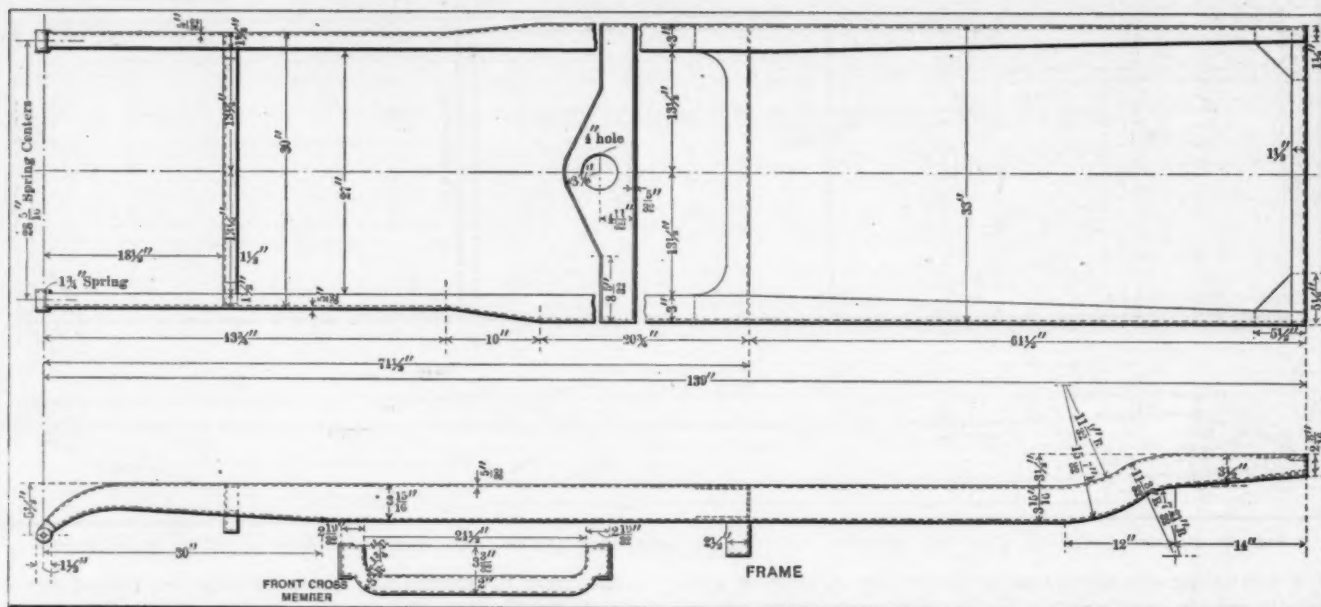


Fig. 25—Moon 30 frame in plan and elevation, showing straight front, rear kick-up, drop cross members, and stability

These boxes are provided for the dry batteries and in connection with the Patterson system of battery connections as made and sold by Stanley & Patterson, New York City, there is every evidence of refinement adequately associated with service.

Gasoline tanks of drawn steel coated with zinc (galvanized) are now in quite common use, and, being made with hemispherical heads with a single lap-joint at or near the midposition around the girth, they are strong, even though the weight of metal used is relatively light. These tanks are made in divers sizes, are provided with all connections as (a) inlet, (b) outlet, (c) filler, (d) for pressure, and when desired a measuring device will be provided with them, this having the utility of showing how much gasoline is in the tank. These tanks are held in stock at supply houses. Charles E. Miller, for illustration, invariably keeps a supply of the several sizes in his several stores, and will fit to the tanks the measuring instruments before shipment.

Tool boxes are quite generally of pressed or drawn steel, and in many cars the battery and tool box are of precisely the same general appearance, both being provided with locks. These boxes are seamless, made of a good weight of metal, and if securely

placed on the running board they cannot be entered by a sneak thief, excepting at the expense of more labor than a person of this caliber will willingly contract for.

Pressed steel dash work is much in vogue, it being used in all automobiles excepting the ones which cling to the mahogany dash, and a few of those which go out with an overhang. In this latter instance the dash portion is of wood in some cases. This pressed steel work is very serviceable and the appearance is satisfactory as a rule, although in some of the earlier examples it did not compare favorably with mahogany work from the point of view of appearance, which has its influence.

Steering wheel spiders to some extent are made of pressed steel, this material having originally been brought out in the B. L. M. cars. The general appearance of the spiders so made was a little against them because they looked light to purchasers, they, to some extent, failing to appreciate the difference in strength which exists between pressed steel and cast aluminum.

Windshields, especially the framing (sash), are made in such a way as to accommodate a packing between the engaging members and the glass, and while some of the material used in the

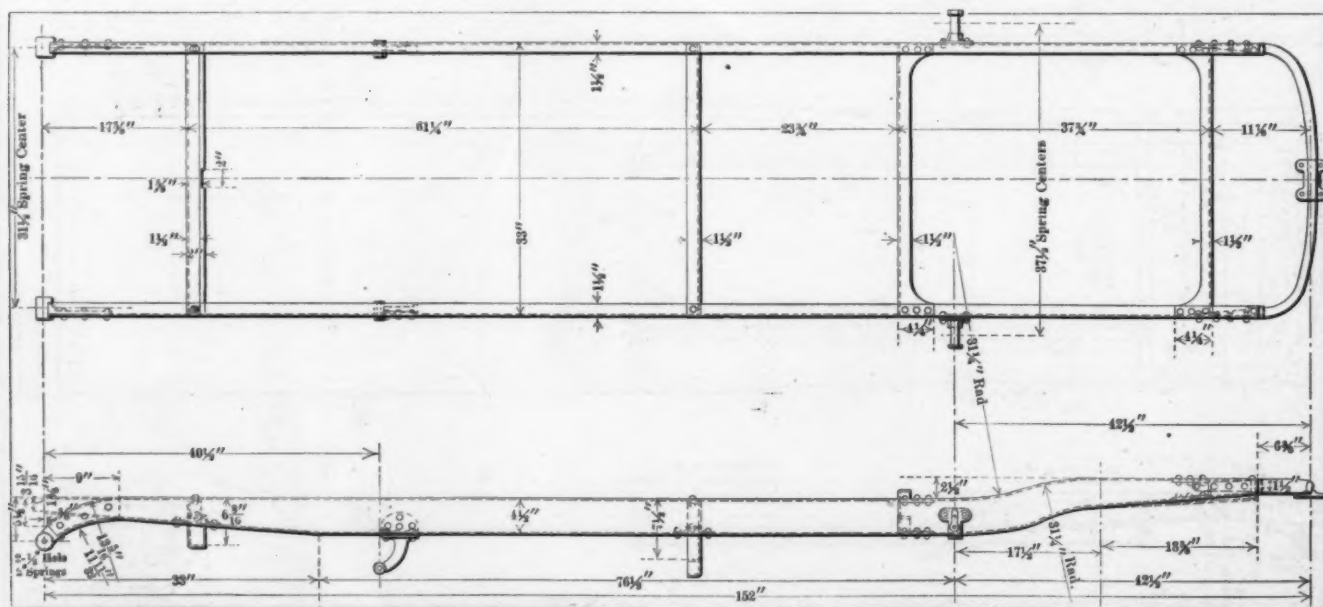


Fig. 26—Corbin frame in plan and elevation, with straight front, rear kick-up and supports for platform springs

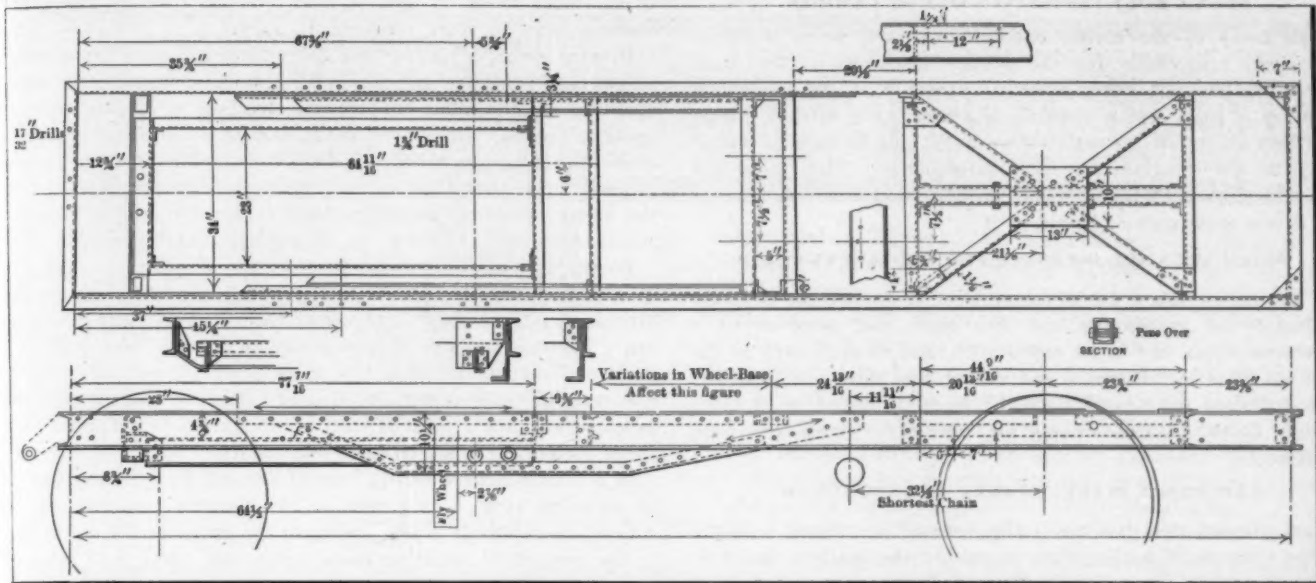


Fig. 27—Alden Sampson frame in plan and elevation, channel section with flanges out, designed for heavy trucking service

sash work may class as other than pressed steel the most of it is either pressed, rolled or stamped. It is the aim of makers of windshields to get away from the use of brass castings to the greatest possible extent, and plated steel offers the widest opportunity. Some excellent examples of windshields were shown on the cars of this year's vintage.

Lamps, to some extent, are of drawn steel. Then there are parts of the lamp-shells which are pressed, although to be sure brass and copper stampings or sheet brass dominates this field. As an extreme example of pressed steel work, reference will be made to the steel plates used in the making of the elements of the Edison battery.

SOD APRONS AND MUD GUARDS OF PRESSED STEEL

Sod aprons, so called (under pans for motors) are made of sheet steel and in the best examples they are formed in dies. There is still some room for improvement in this line of work, notably in the methods employed for fastening the aprons in place, for if they are not securely fastened they will fall off, or noise will greet the ear of the owner of the car in any such event. If the fastenings are secure, but difficult to undo, the time required in which to examine the under side of the car, or make a repair, will be excessive in all probability.

Mudguards in nearly all of the recent examples are formed of steel. Aluminum is still in vogue to some extent, but steel answers every requirement, is more lasting, taking it on the whole, in view of the mudguards which now extend down to the chassis frame, steel is suitable metal, and for a good shape it is necessary to employ dies in the process, so that this work takes rank as pressed steel, although a press of the conventional sort may not be used in the process.

Running-boards are now almost invariably of pressed steel, the stock being relatively heavy in pounds per square foot, but to make the running-boards light as well as rigid, they are punched out, leaving about 50 per cent. of the total weight of the original metal. These boards are rendered strong by having flanging at the two edges, and they are also properly shaped to neatly engage the mudguards, to which they are bolted. The running-boards are properly bolted to brackets, which are also of pressed steel, and in this undertaking, it may be as well to say, it is a distinct advance over the older method of forging brackets out of iron, in which forgings welds were necessary, and they did not always hold securely. It is also true of the newer pressed steel brackets that they very materially add to the general appearance of the cars, and are much lighter.

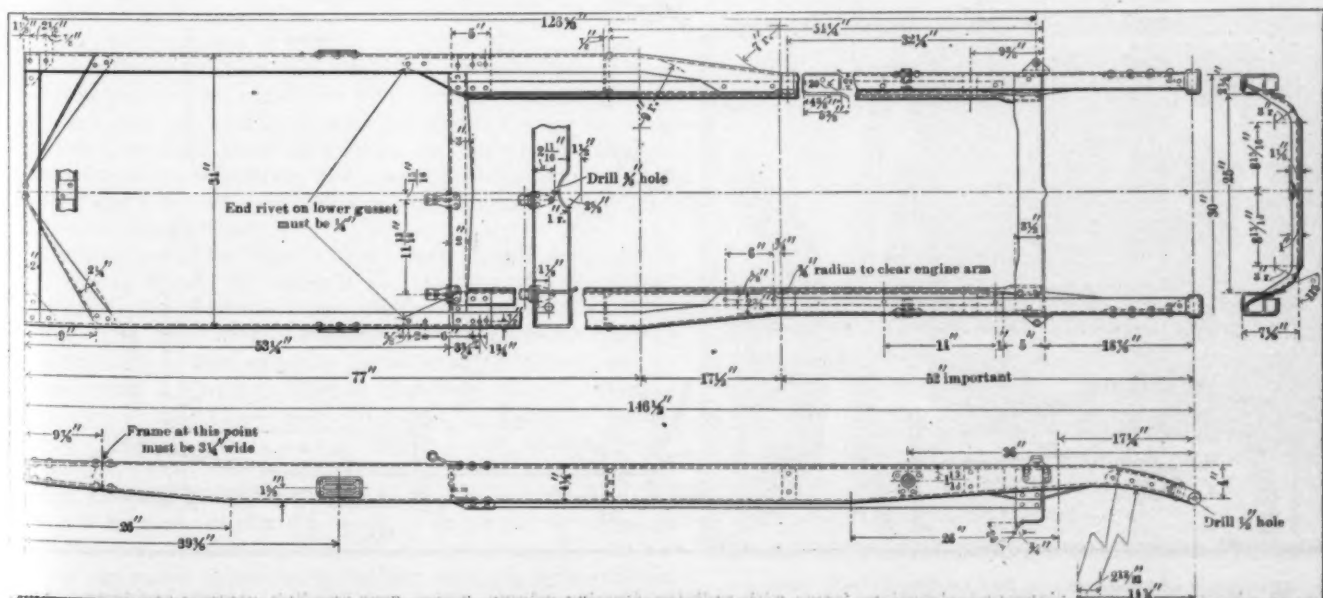


Fig. 28—Premier frame in plan and elevation, with narrowed front, for semi-elliptic rear springs, and extra means of support at offset

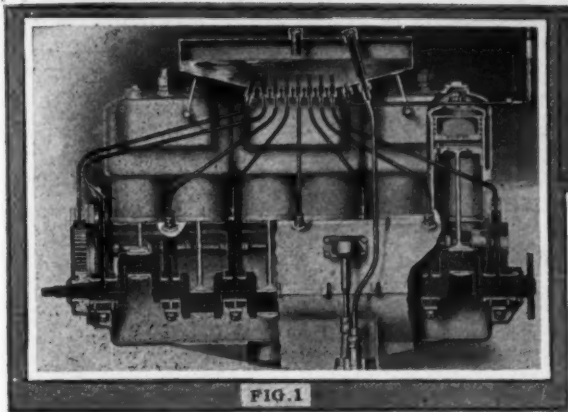


FIG. 1
Section of Pierce "six" motor, showing crankshaft, half-time gears, twin cylinders, and method of oiling

ELECTRICS were the first to come into vogue, and while the electrical undertaking, considering it as a whole, may represent a very considerable effort, during which divers ideas were tried out and some of them found wanting, still commercially the principle remains, and in its refined state, as it is presented today, electrical vehicles serve with great distinction in a definite field of usefulness. In discussing types of power plants as they are utilized in automobiles generally, it would be to cover the subject but poorly were the electric situation ignored. In view of restricted space, there being so many points to cover in reviewing the exhibitions under the auspices of the A. L. A. M. at the Garden, it will be necessary to limit illustrating and discussion so that the electrical situation is reduced to a single display merely to afford it the recognition to which it is due, which illustration (Fig. 2) is of a Waverly power plant as it is placed under the body of a Waverly electric vehicle.

LONG STROKE MOTOR IN GOOD PRESENCE

It is in gasoline work that the greatest strides were made, and it would take many pages of space, with hundreds of illustrations, to adequately indicate the extent of activity in this field. If the electrical power plant ranks first in the line of development, it is true in gasoline work that the "six" comes at the end.

The title illustration, which is of a Pierce-Arrow, presents evidences of the refinements in this class of power plants, and this refinement is very general in all the products. The condition is reflected in the fact that the "sixes" are confined to the higher priced automobiles. At the Garden these plants were present in

| | |
|---|----|
| Cars costing from \$1,500 to \$2,500..... | 5 |
| Cars costing \$2,500 to \$4,000..... | 12 |
| Cars costing \$4,000 or more..... | 40 |

In the "sixes" there are few indications of innovations, it being common practice to adhere to well authenticated plans, with cylinders cast in pairs, lubrication by special definite pumping methods in addition to splash systems, and ignition by means of a magneto in every instance, and always attended by a coil and battery which is used in cranking, noting exception that Winton has an automatic starter.

The long stroke has taken a hold in this class of work, and in the Thomas Model "M," which is a 41-4 x 51-2 bore and stroke, respectively, for illustration, this idea is regarded as of excellent virtue. This long stroke advantage, instead of being confined to a few cars, is very generally maintained, the Winton, for instance, being a 41-2 x 5; Mitchell Model S, 41-4 x 5; Premier 6-60, 41-2 x 51-4; Lozier-Briarcliff model, 45-8 x 51-2; Pierce-Arrow 36-horsepower, 4 x 43-4; Pierce-Arrow 66-horsepower, 51-4 x 51-2; Matheson 50-horsepower, 41-2 x 5; Alco 60-horsepower, 120 x 140 (millimeters), bore and stroke respectively.

It will be observed that the length of the stroke, as compared with the bore, does not represent a large percentage, but the extent of agreement in relation to the long stroke is fairly reflected in these figures. With a view to showing the other side of the

TYPES OF POWER PLANTS

story, attention is called to the Knox Model S, which is 5 x 43-4; Oldsmobile "Limited," 43-4 x 43-4; Franklin Model H, 41-4 x 4; Stevens-Duryea Model XXX, 43-4 x 41-2, bore and stroke respectively. Taking the motors as they actually obtain, and considering the designs on both sides of the long stroke question, the situation favors the conclusion that departure from the square cylinder, in which the bore equals the stroke, is but slight in favor of the short stroke, and just enough to notice in the direction of the long stroke. There are fine examples of automobiles on both sides of this question, and they have all been on the road doing good work long enough to inspire confidence.

This question of bore and stroke, as it relates to the six, is substantially reflected in about the same way down through the "fours," and possibly into the "twos," but there is a distinct change when it comes to one-cylinder cars, of which the Garden, however, presented none at all, so that this phase of the subject will not have to be discussed here.

VARIOUS TYPES OF FOUR-CYLINDER MOTORS

Valves in the head seemed to favor a high-weight efficiency, and the excellence of performance in other respects commanded the attention of some recognized designers. Fig. 3, of a Stoddard-Dayton, shows one of the very competent engineering methods by which this type of motor is consummated. There are other good examples of valve-in-the-head motors—for instance, the Moon, Model 45, and others. In the Stoddard-Dayton, as illustrated, it will be observed that the valves may be quickly removed, and that ample means are at hand for assembling to tightness, because the cage is so fashioned as to compensate for heat changes. The carburetor on this motor is a multiple nozzle type, connected through a well-designed manifold, and the motor is said to operate with rare flexibility. The cylinders are cast in pairs, which is quite a common practice.

The Premier Model 30 motor, as shown in Fig. 4, is offered as an example of a four-cylinder motor with T-headed cylinders. The motor is shown on a working stand, turned 90 degrees, with the under half removed, exposing the crankshaft, showing that it runs on three bearings and that the lower halves of the journal

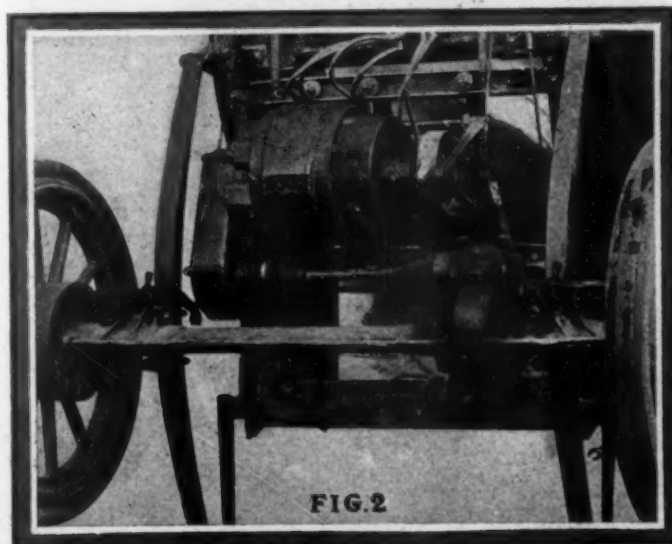


FIG. 2
Waverly Electric hoisted and photographed to show power plant, transmission, and methods of fastening

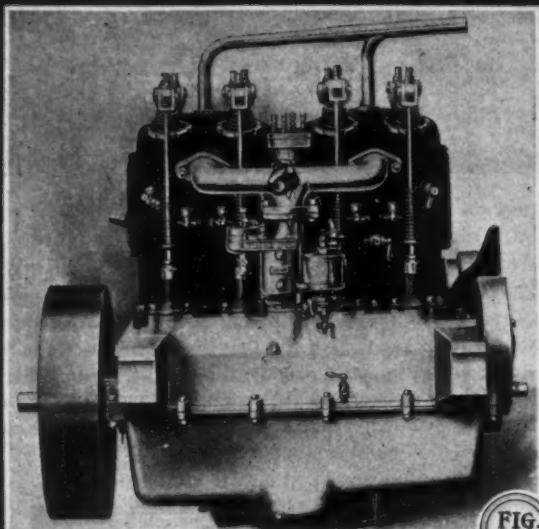


FIG. 3



FIG. 4

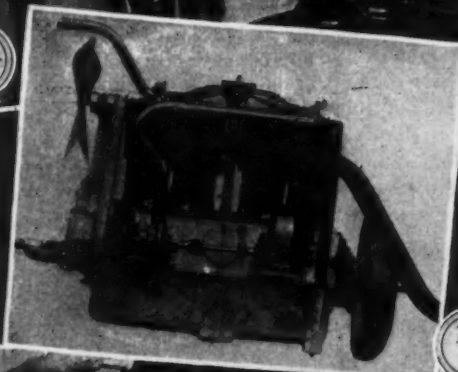


FIG. 5



FIG. 6

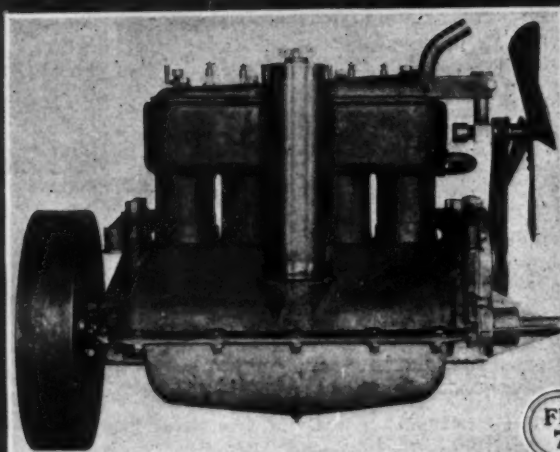


FIG. 7

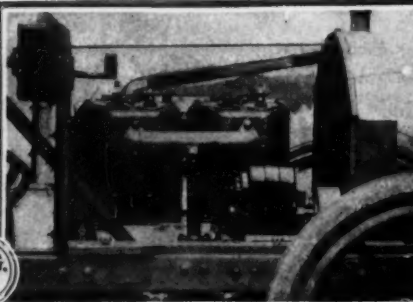


FIG. 8

Fig. 3—Stoddard-Dayton, showing cylinders in pairs, valves in the head, multiple nozzle carbureter, and refinements

Fig. 4—Premier motor tilted on workstand, showing crankshaft in three bearings, with T-type twin cylinders, detached

Fig. 5—National motor, showing left side, magneto flexibly mounted, centrifugal water pump, and timer in accessible position

Fig. 6—Excelsior motor with four cylinders in pairs, flexibly mounted magneto, enclosed half-time gears, and neat workmanship

Fig. 7—Metzger motor with cylinders in block, in integral relation with crankcase upper half, special oiling facilities, and a large flywheel

Fig. 8—Moon 30 motor in car, showing thermo-syphon system, T-cylinders in pairs, and accessibility of accessories.

boxes are bolted to the top half of the case. This practice is regarded as thoroughly good in every way, and is utilized to quite some extent in representative motor work. The cylinders are shown detached below, cast in pairs. Fig. 5, which illustrates a National four-cylinder motor, shows by way of distinguishing features that the magneto is flexibly assembled, there being a double universal joint between it and the shaft which drives it.

Fig. 6, of an Excelsior four-cylinder motor, is of the L-type of cylinders, with the magneto driven from a gear which meshes directly with the half-time gears. A double Oldham joint gives flexibility of the mounting.

Fig. 7, of the Metzger motor, which is a relatively new product, differs from all the others shown, and represents a new feature of construction which will be watched with much interest. The four cylinders, which are L-type, are cast integral with the other half of the crank box, all of gray iron, and the round tank which nests in the mid-position is for lubricating oil. It is of a commodious size, and so situated as to collect heat units from the cylinders nearby. The motor has the virtue of being very completely enclosed with relatively few parts, and the commodious flywheel adds materially to its ability by way of flexibility and the facility of operating at a very low speed.

INDIVIDUAL CYLINDERS ARE IN EXCELLENT PRESENCE

In the Rambler plant at Kenosha, Wis., the power plants for all models are designed with individual cylinders, as shown in Fig. 9, and the crank box is the possessor of a distinct innovation, which cannot be disregarded in the search after quality.

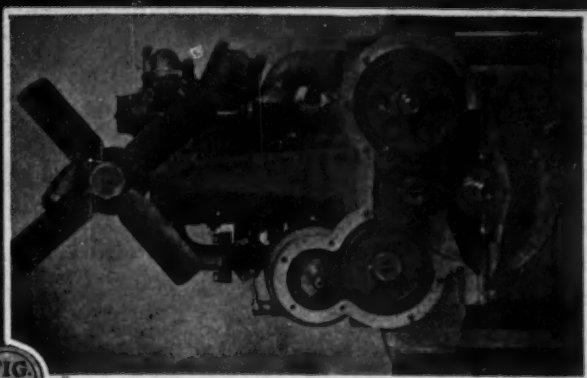


FIG. 13

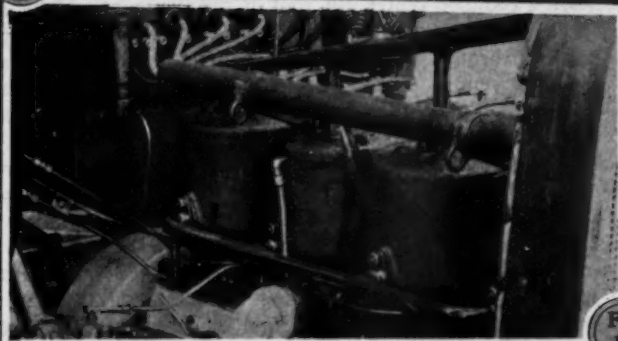


FIG. 14

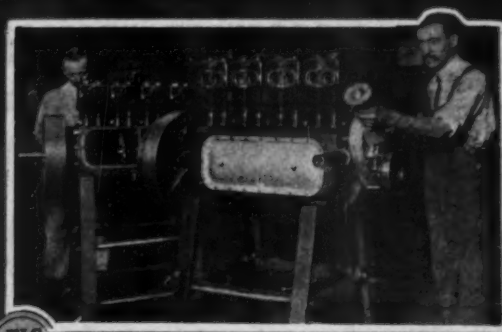


FIG. 9

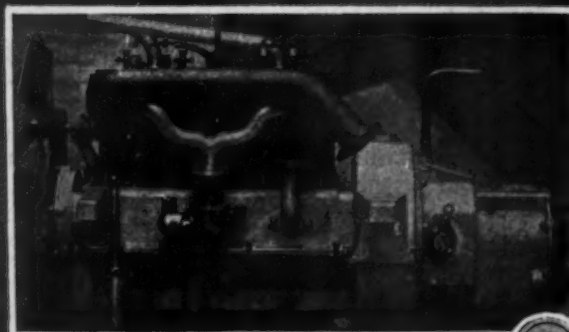


FIG. 10

Fig. 9—Rambler motor with individual T-type cylinders and undivided crankcase, using one camshaft

Fig. 10—Patterson 30 motor, showing individual power plant, enclosed clutch and transmission, and Schebler carbureter

Fig. 11—Cole 30 power plant, unit type, with four cylinders cast in pairs, and enclosed clutch and transmission

Fig. 12—Moon power plant, showing fan in flywheel, expanding band clutch, and means of control

Fig. 13—Alden-Sampson power plant, showing half-time gears, positively driven fan, and refinements

This crank box is made without being split on the horizontal center, and a large handhole which is placed on the working side permits of inspecting and adjusting ball bearings on the crankshaft and connecting rods at will. The further advantage which is present in this design lies in the fact that the thrust on the pistons due to gas work comes on the solid section of the crank box, rather than upon holding bolts, which would be true were the box made in two halves. This example presents evidences of a distinct school of design.

UNIT TYPES OF POWER PLANTS VERY PREVALENT

The Patterson 30, as shown in Fig. 10, is an excellent example of the unit type of power plant, as it is being exploited in a considerable percentage of the relatively low-powered automobiles as they were shown this year. In nearly all these examples the cylinders were cast *en bloc*, and while the Chalmers 30 has a sufficiently husky power plant to show that this type of construction is by no means limited, the fact remains that it is much favored in the relatively small cars.

Departing from the block cylinder feature, it will be possible to point out that the unit type of power plant is utilized to excellent advantage in connection with other cylinder designs—as in the Stevens-Duryea power plants. Fig. 11, of a Cole 30, is an illustration of a unit type of power plant with the cylinders cast in pairs and thermo-syphon cooling. Fig. 12, showing the flywheel end of the Moon car, illustrates one way of propelling air through the radiator in front, over the surfaces to be cooled and out under the car. In this example the fan blades in the flywheel are so designed as to draw all the air which can be efficiently utilized even in the absence of a disc fan back of the radiator.

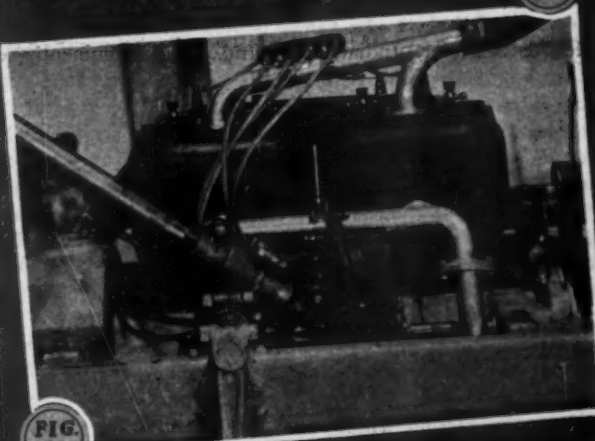


FIG. 11

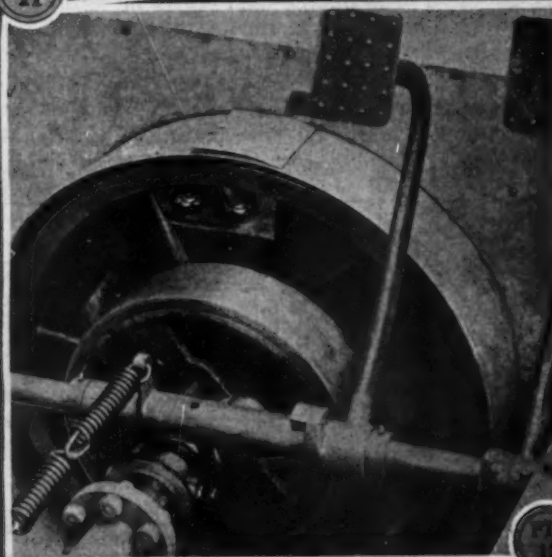


FIG. 12

HOW CARBURETER PROBLEMS ARE SOLVED

SINCE Daimler's time, the vaporization of liquid fuels has been a big problem, which, as time passed and the supply became poorer and poorer, increased in difficulty of solution. In the meantime, as the fuel became worse and worse, designers made much progress, and would have made more had the fuel remained uniform. However, with the present day fuel, poor as it is, the present day designers have arrived at a nearperfect condition of vaporization. Following a number of important moves toward and away from several specific designs or, more correctly, principles, a general type has been evolved from which all carbureters differ slightly, but from which no one carbureter differs in its entirety.

For the present season, few manufacturers show marked or radical changes, the alterations which make the 1910 product different from the 1909 devices being confined to details of small consequence, and in some cases, of microscopic size. One noticeable change which the year has brought forth, and which might have been reflected by the infinitesimal changes in the actual product, is the action of many prominent manufacturers in buying instead of making their own. This throws the business into the hands of the carbureter specialists. In any list of prominent details, which now show widespread adoption, the first to be mentioned would undoubtedly be the venturi tube, while much attention is being given to multiple nozzles, auxiliary air valves, and improved ease of starting.

Wheeler & Schebler—In the Schebler carbureter, made by Wheeler & Schebler, Indianapolis, Ind., and prominently exhibited at both shows, the venturi shape of strangling tube is not quite as apparent as on some other makes, but the general idea of the venturi tube is carried out, the shape being straight below the nozzle level, narrowed into a small neck just at the nozzle tip, and expanded above in approved form. The concentric float is used on all models as is also the auxiliary air valve. The latter may, however, be had in about any position desired, either vertical or horizontal being regularly supplied, while other angles may be had upon special orders. The design of this is the same in all cases, being a poppet type of valve with a long central sleeve which slides upon a central shaft.

For starting purposes, provision is made to allow of holding the float down, so that gasoline will continue to flow, while, at the same time, the suction will not be strong enough to open the auxiliary air valve. The throttle used differs in detail, being of the butterfly type on Model L, and of the flat, cutoff type in Models E and others.

Stromberg Motor Devices Company—This Chicago concern makes two principle types of carbureters, which, in a word, differ but in the location of the float and minor details. Model A has the float in a chamber separate from the vaporizing cham-

ber, and connected to it by means of a horizontal passage. In Model B, on the other hand, the float is concentric with the vaporizing chamber, and the gasoline flows into the latter through a number of small passages sloping downward, toward a common center, the foot of the standpipe. In both types, the main air enters around the outside of the standpipe, passing upward, through the vaporizing chamber, which is of a slightly modified venturi shape. This modification takes the form of rounding all of the surfaces, so that they present a spherical surface rather than a plain conical one.

In both, too, the auxiliary air is constructed similarly, with the same form of adjustment, and similarly located with regard to the vaporizing chamber, that is offset is a horizontal plane. This auxiliary air inlet has a cone-seated poppet valve, very similar to ordinary engine valves, which valve works against a pair of light springs, both being adjustable. A locking means for each one is provided to retain the proper adjustment, once it is obtained. Fig. 3 shows a section through each one of the two models, designated A and B.

Byrne-Kingston & Company—At this booth is shown the Kingston carbureter, which is of the concentric float, venturi tube type. Around the latter, the main air also enters, the passage for it being concentric with the standpipe. To this air passage, the air is led up from the side by a long pipe shaped like a double elbow. In both Schebler and Stromberg, the needle works from below, from which point it is adjusted for either more or less fuel, but in the Kingston, the needle works down from above, so that it is adjusted from there, just the opposite to the other two. The makers claim that this gives a more accessible adjustment. At the top, too, is found the throttle, which is of the butterfly type, with limits of motion. The passage of the air to the inlet pipe describes a passage of the shape of a channel, that is to say, with two turns, and two only.

Allen Fire Department Supply Company—Chief among the distinguishing features of the Allen carbureter, made by this Providence firm, is the throttle. This differs from the conventional in that it is neither of the butterfly, nor of the piston type, these being the two ordinary ones. It consists of a long slide, semi-circular in section, the flat upper surface forming the diameter of the circle. In the other direction, this is pierced by a circular hole, corresponding to the circular pipe to the engine. By sliding the throttle along on its ways, the hole in it may be made to register with the inlet pipe hole, which corre-

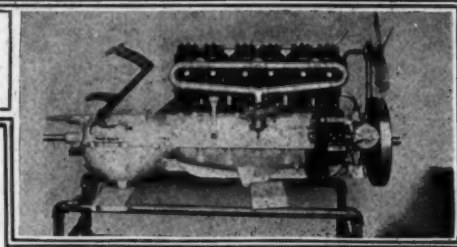


Fig. 1—Anhut motor, showing application of Stromberg carbureter

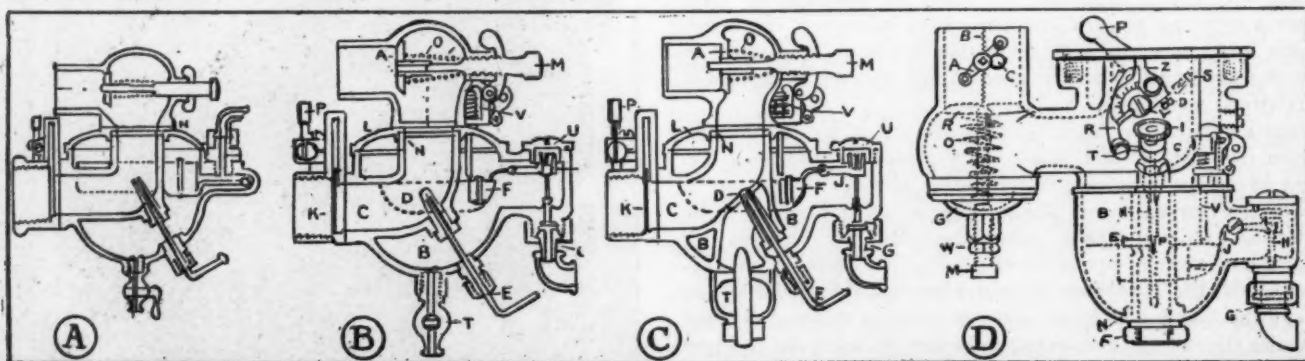


Fig. 2—Schebler carbureters A, B, C, and D, in section

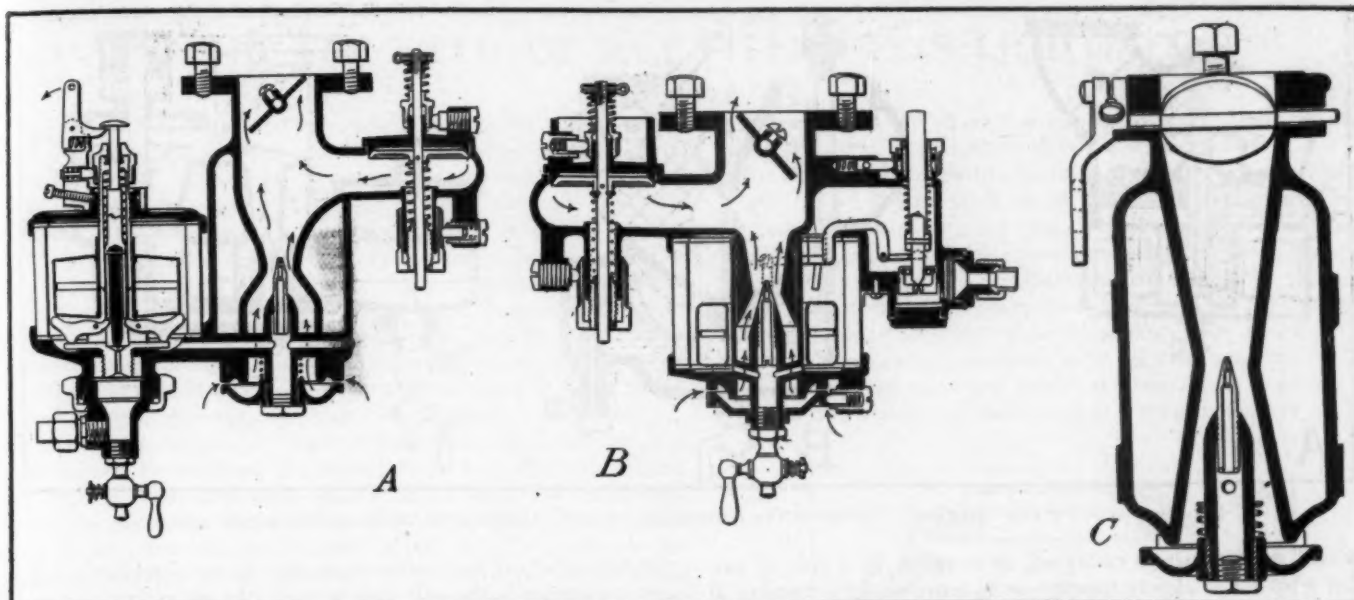


Fig. 3—Sections through Stromberg carburetors A and B. C is a venturi tube of different section

sponds to a wide-open throttle. Other positions on each side of this give partially open throttle, according to the position.

To limit the movement, the slide carries at one end a headless set screw, which at the extreme of the movement in that direction hits against the body of the carburetor base, thus limiting the movement that way. By screwing this set screw in or out, the movement is either increased or decreased. At the other end, a screw with a wide flat head which the slide hits against, limits the movement. This, too, is movable, to change the adjustment. The float is concentric with the vaporizing chamber, but the entrance of the fuel is decidedly out of the ordinary.

Instead of entering directly, the gasoline flows into a small vertical standpipe, from which it overflows at the top, as the needle, entering there at an angle, allows. The vaporizing chamber is a straight tube, the air entering at the bottom, passing straight through to the inlet pipe, picking up the gasoline spray in its passage.

Siro Carburetor Company—In external appearance the Siro carburetor, made by the company of the same name, located at Springfield, Mass., looks like the letter U with a circular attachment at the bottom of the letter. The two uprights of the letter are formed by the air inlet and the pipe to the engine, while the circular base attachment is the float chamber. The engine outlet may, however, be made horizontal instead of vertical, in which case the shape becomes more that of a letter L. The float

is of spun copper, made in two pieces, carefully soldered, and thoroughly tested to find leaks. The arrangement of the throttle and the mechanically operated air inlet is such that they operate together, that is, when the throttle valve is being opened, the auxiliary air valve is also opening and in the same proportion. The needle is also connected to the throttle and air proportioner, so that any movement of the others will result in a corresponding opening or closing of the gasoline inflow. Despite the interconnection of these three parts, each one may be adjusted separately from the others, so as to obtain the correct air and fuel proportions.

Watres Manufacturing Company—The Duryea carburetor, made and shown by this company, is somewhat on the U shape also, being of what is known as the "puddle" type. The air enters at one end of a curved tube, forming a very flat U, into the center and bottom of which the gasoline enters, and normally lies in a puddle. The air, with the entrained gasoline in finely divided form, flows out at the other end, through the butterfly throttle to the engine inlet pipe. The float is concentric with the central portion of the carburetor body. That is, it is as near concentric as its H shape would allow.

The needle valve is interconnected with the throttle, allowing gasoline to enter according to the opening of the throttle, which in turn varies with the demands of the engine. The needle has a rather unusual spring controlling device, this consisting of a

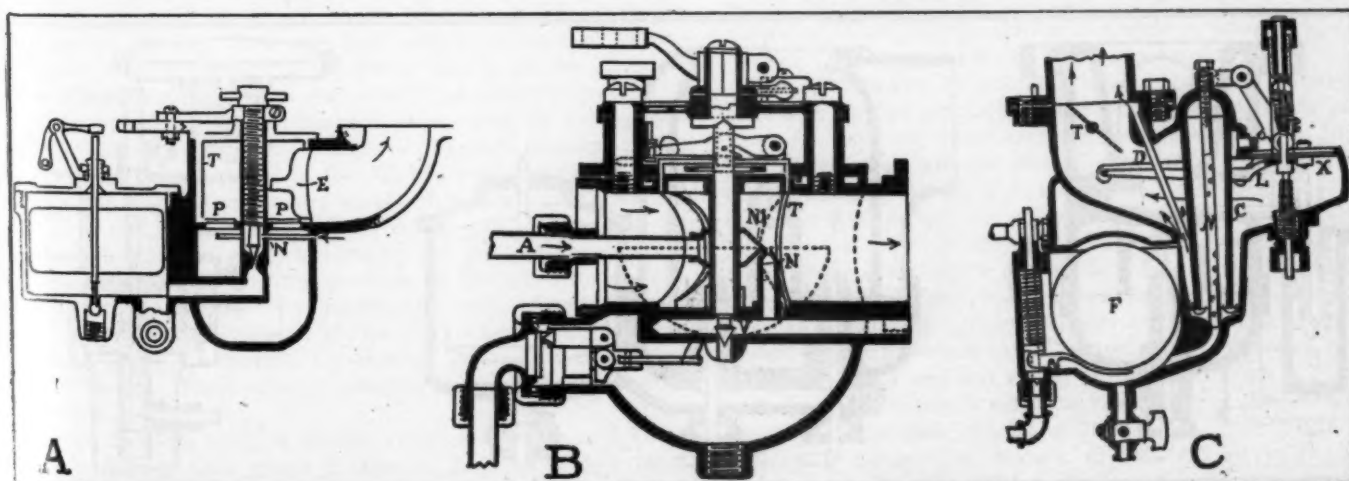


Fig. 4—A shows Gaeth carburetor. B presents an Anderson carburetor, a newcomer. C depicts a Carter carburetor in section

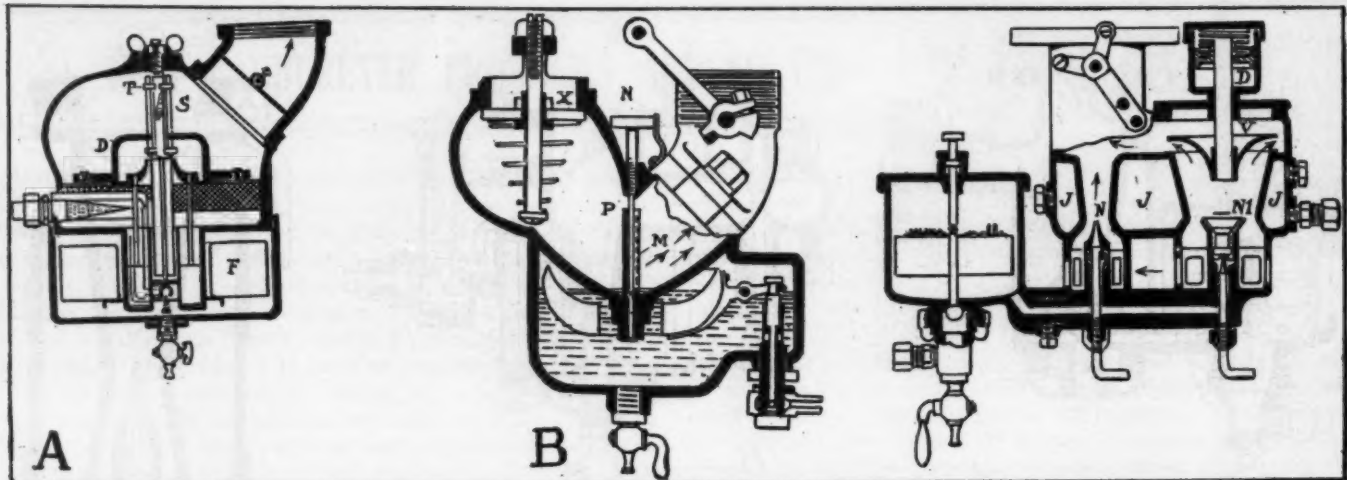


Fig. 5—A is a Duryea vaporizer. B presents the Bennett carburetor. C depicts a Willet carburetor in section

twisted shaft, which is embraced, so to speak, by a pair of parallel arms set so closely together as to move with the turning of the shaft. These arms are pivoted at the top to the end of the spring, so that the motion of the former is opposed by the latter.

Wilcox-Bennett Company—As Fig. 5 shows, the Bennett carburetor, made by this Minneapolis firm, is of the puddle type, the fuel entering at the bottom of a figure U formed by the air inlet and outlet. The nozzle presents some unusual ideas, being not only different, but the point upon which the action is based.

It is a rather high standpipe, with a two-diameter central hole, bored with a series of smaller holes of equal size, one above the other, reaching from the base, close to the bottom of the U, up to the top of the standpipe. Within this the needle valve stem occupies the larger hole, terminating in the needle point and seat at the bottom, where the smaller diameter commences.

Now, as the motor demand is small, the gasoline flows up to say the first hole only. But, with increased demand from the cylinders, more fuel is sucked up, and passes out through several holes, this action continuing until at the full limit of the motor's suction, all of the holes are spouting gasoline out into the vaporizing chamber. A butterfly throttle is used, a semi-concentric float, and a flat-seated air valve, there being no auxiliary air.

Willet Engine & Carburetor Company—Although developed primarily for the two-cycle engine manufactured by this Buffalo firm, this carburetor is placed on the market, and in four-cycle service has been fully as successful as in the two-cycle work, if not more so. This, as shown in Fig. 5, is really two carburetors in one. There is a float chamber which supplies both through a horizontal passage, while each vaporizing chamber has its own air inlet, these being fixed in area by the makers. For

ordinary work, at low and medium speeds, the single jet of the first carburetor is the only one to work, the air entering around the base and passing straight upward to the engine.

As the suction increases, however, the piston or cover for the second carburetor is drawn upward by it, thus allowing the second carburetor to get into action. In this there are four nozzles, radiating from the center supply pipe, and all four supply fuel once the vaporizing chamber is put into action. In this, also, the air enters around the base, passes straight upward, then makes one turn into a horizontal passage, connecting it to the main inlet opening, at which latter point the gases from the second vaporizer makes a second turn and join the gases from the first.

Otto Sales Company—This firm imports the Economy carburetor, which is produced in Switzerland by the makers of the Saurer truck, also imported by this firm. The unusual success of the commercial cars fitted with this vaporizing device, winning as they have every contest in which they were entered, has called particular attention to this make and its salient points. It might be described broadly as a multiple jet, clack throttle, non-concentric float type. There are two jets, alike in all respects, set side by side, and fed with fuel through a common horizontal pipe from the float chamber. The clack or flap throttle is pivoted in the center of the vaporizing chamber just above the nozzles. This construction and location allow of the throttle lying over to either side, in which case only the nozzle left uncovered is feeding fuel. With a marked increase in the suction, the flap valve will be pulled up into a central position, when both nozzles will supply fuel. Lest the throttle move quickly back and forth, with consequent uneven action of the engine, a dampening dash pot is provided on the exterior projection of the throttle lever.

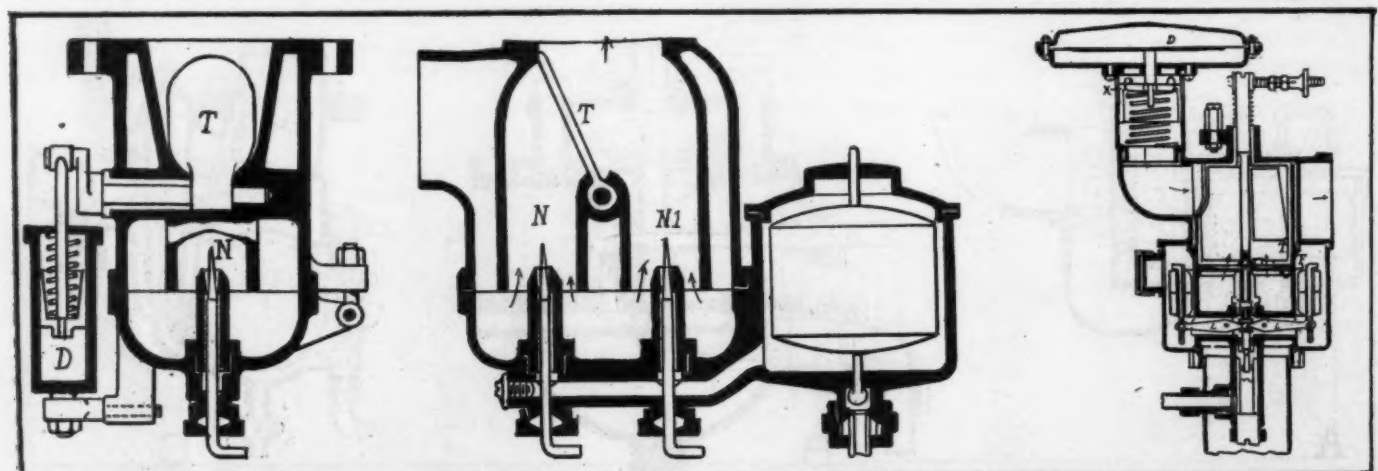


Fig. 6—A and B are sections in two planes of the Economy, a European carburetor. C presents a section through the Chadwick.

IN THE FIELD OF ACETYLENE GAS LIGHTING

FAMILIARIZED by many years of service, the acetylene headlight holds its own in the affections of the veteran automobilist, in spite of the wonderful increase in popularity of the various electric forms. Therefore, although the lamp makers almost unanimously show electric lamps, either for combination with the older form or for the exclusive use of the magic current, they do not abate the prominence of the acetylene types. The 1910 lamps show many improvements over the earlier forms. Most of these, it is true, are in external appearance, for the time-tried principles have not been touched. Yet in these days when satisfactory performance is taken almost for granted, appearance is often the only guide.

The most remarkable single feature is the universal adoption of means for reducing the glare of the lamp for city driving. This has been made imperative in many places by traffic ordinances, and many automobilists have been driven to the makeshifts of whitewashing the inside of the door, or pasting brown paper over the glass. Although they secure the results, these are clumsy methods, and the new anti-glare devices, in their many forms, will meet with a hearty reception.

Atwood-Castle Company—Three styles of headlights and a searchlight summarize the acetylene-using product of this company for 1910. In their exterior appearance the feature which immediately attracts the eye is the use of diamond-shaped holes in the upper ventilating hood. These holes, emphasized by moldings stamped in the metal, give the lamps a distinctive touch by which they may easily be recognized on the road.

The first of the styles of headlights may, for purposes of comparison with the others, be designated as the standard. It is of pleasing proportions and neat in appearance. The second will be found more adapted to particular types of cars, being compact, large in diameter and short in length. The third is a popular-priced model. The searchlight has an adjustable gas tip, by means of which the flame may be concentrated directly in the focus of the mirror, for long-distance work, or diffused to give a maximum illumination at close range. All the lamps are constructed of extra heavy gauge material, with all screws placed on the interior, giving a smooth exterior surface for cleaning. Bausch & Lomb and Atwood-Castle short-focus Mangin mirror lenses are used on all models.

Badger Brass Mfg. Co.—The latest development in acetylene lamps for city driving is the "Solar Raydeflector." This is simply a movable gas jet, by means of which the flame may be brought in or out of focus as desired. Normally, of course, the flame is in focus, but for city driving, or when meeting horses on a country road, the jets can be raised slightly. This causes the rays which ordinarily form the long-distance beam to be projected downward so as to strike the road just in front of the car. The only light which continues to be projected directly forward is the direct light from the jet, which does not dazzle any more than that of an ordinary gas jet.

On another Solar product the same result is accomplished in a different way by the use of the Besnard eclipsing system, which is incorporated in the "Solarclipse" headlights. The eclipsing mechanism consists simply of a round, blackened disc on the end of a pivoted arm. The disc can be swung at will down behind the gas jet, between the jet and the parabolic reflector. The effect of this is to cut off the long-distance beam, for although the disc is comparatively small it is close enough to the flame to intercept all the light rays which otherwise would strike the mirror. On looking into one of these lamps with the disc down, only the acetylene flame can be seen against a black background.

The "torpedo type" is another recent development. Like the style of body from which it takes its name, it is very simple in appearance. The body and flare are of a single piece of extra heavy brass. The door is set deep in the front end, the

glass being recessed in such a manner that the front reflector, which is formed by part of the door frame, is outside.

R. E. Dietz Company—Novelties are few on the Dietz stand. This company made up its mind several years ago as to the line it desired to carry, and has found no occasion to change. The only important development has been the weeding out of useless patterns and the concentration of all energies on a few which were found to best meet the demands and needs of the public. The Dietz "Majestic" style is a flare-front design of the type which experience has shown to be the most popular.

The makers of the Dietz line have always laid stress on the strength and solidity of their product. Dietz lamps are said to

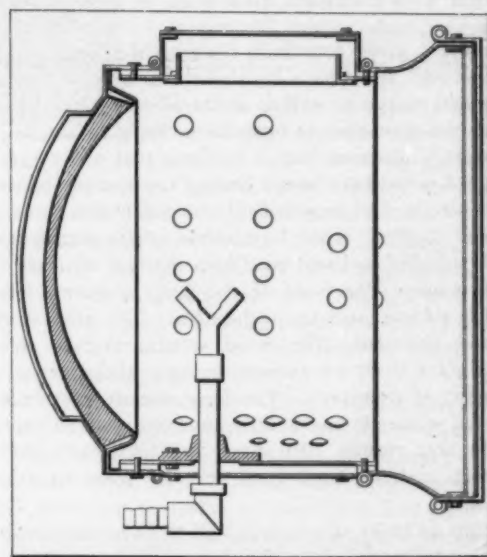


Fig. 1—Section of a Rushmore searchlight type presenting evidences of strength and utility

be considerably heavier than others of the same size, and the extra-weight is due to the use of heavy gauge sheet brass and brass castings throughout. Thus, although hardly adapted to act as buffers in the case of a collision, as lamps are frequently called upon to do, the Dietz-lamps still will not be damaged by the minor mishaps which will always occur.

Edmunds & Jones Mfg. Co.—The E. & J. acetylene headlights are continued in their 1909 forms practically unchanged; they are distinguished by a rather unusual length, which gives them a rakish appearance. The flare fronts are integral with the cylindrical bodies, and the surface as a whole is smooth and easily cleaned. The few parts are strongly riveted together.

Few automobilists have escaped being annoyed by watery gas, even with the best generators. The least excess of water in the generator feed will cause sputtering and uneven action in the lamps, and often will put them out altogether. To overcome this objection to the use of acetylene with generators, the E. & J. Company has brought out a "condensation cup," which is expected to do away with this annoyance. The condensation naturally collects in the lowest part of the tubing connecting the generator with the lamps. The condensation cup is a brass receptacle, to be screwed to the under side of the running-board and provided with a petcock at the bottom. It is connected in the system in such a way that all the gas passes through it. Owing to its position, the cup is much the lowest part of the tubing system, and all the water collects in it.

Gray & Davis—The feature of this exhibit is the new "patent leather" finish, which is the logical outcome of the reaction against excess brass work on other parts of the car. The

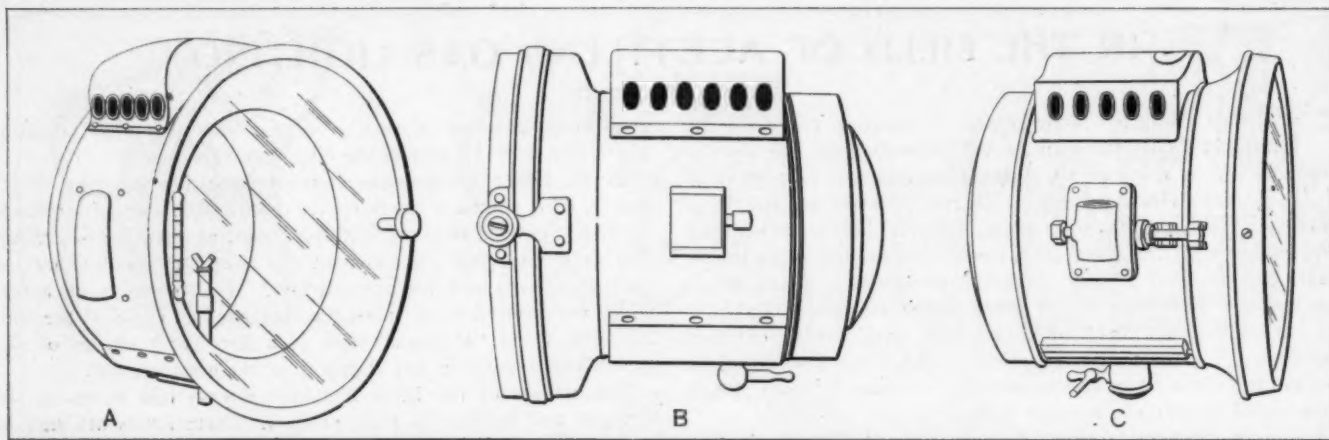


Fig. 2—A presents a Solar lamp; B portrays an E. & J. headlight; C depicts a Dietz type of headlight; all acetylene

"patent leather" gives a metallic lacquer-like lustre, impervious both to heat and moisture. It is made in several combinations with brass and nickel, as well as in the all-black style. The black bodies with the door rims in brass or nickel give an effect that is found especially pleasing, and it is likely that many cars will be seen equipped with these lamps during the coming season. The finish does not need to be polished, and requires no especial care.

The "close coupled" is the latest style in gas headlights, and is particularly adapted to harmonize with the type of body to which it owes its name. The body of the lamp is drawn from sheet brass, and is all one piece up to the door. The brass is carefully selected and annealed. The hood is also in one piece. The mirror and glass front are secured by concealed screws, allowing easy replacing if necessary. The lens mirrors are made of the best imported white glass, carefully annealed, ground and silvered to give the best results. In shape the "close coupled" is unusually short, and the hood runs into the front flare in a distinctive fashion.

Apart from its looks, this type is said to have distinct structural and optical advantages over the longer forms. There is less space horizontally, and therefore no useless currents of air to make the flame flicker. On the other hand, there is more air vertically, where it is needed to carry off the heat, and there is always a sufficient volume of air inside the lamp to give a healthy white flame.

C. M. Hall Company—The headlights of this company are another example of one-piece construction. The bodies are 20-

gauge sheet brass, to secure the maximum strength and solidity. The feature of the exhibit is the lamp called the "New Yorker," because it is especially adapted to comply with the traffic regulations of that city. It has a combination gas and electric burner, the gas jet and the electric bulb being arranged on the ends of a Y-shaped brass casting. The "Y" is pivoted at the bottom of the lamp, so that by means of its exterior projection it can be swung to bring either the jet or the bulb into the focus of the mirror.

Rushmore Dynamo Works—The most important development in the 1910 line of this company is the adoption as standard of the "multiplex" door. This door consists of a number of vertical lens strips, the front sides of which are ground to a convex curvature. The effect of these lenses is to spread the light out in a horizontal plane. When the beam from the lamp is cast on a wall the illuminated area takes the form of an ellipse with the longer axis horizontal. All the light is thus thrown on the ground, without wasting any on the sky or the front axle of the car. It has a further tendency to project in the right direction, the light coming directly from the front of the jet.

These lamps will greatly increase the security and peace of mind of pedestrians who happen to meet cars to which they are attached, as the light is kept low down and below the level of the eyes of a person standing within dazzling distance of the lamp. Another advantage is that they overcome flickering, even at high speeds. Their popularity is already so great that it has been found necessary at the Rushmore factory to install additional machinery for grinding the multiplex lenses.

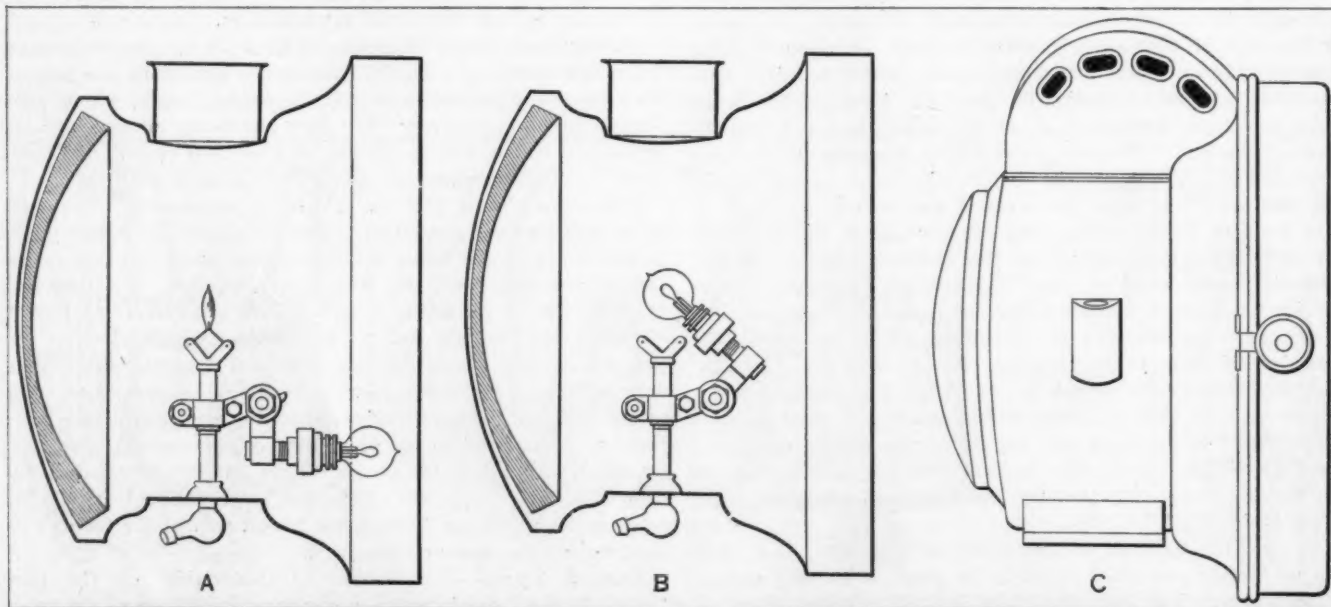
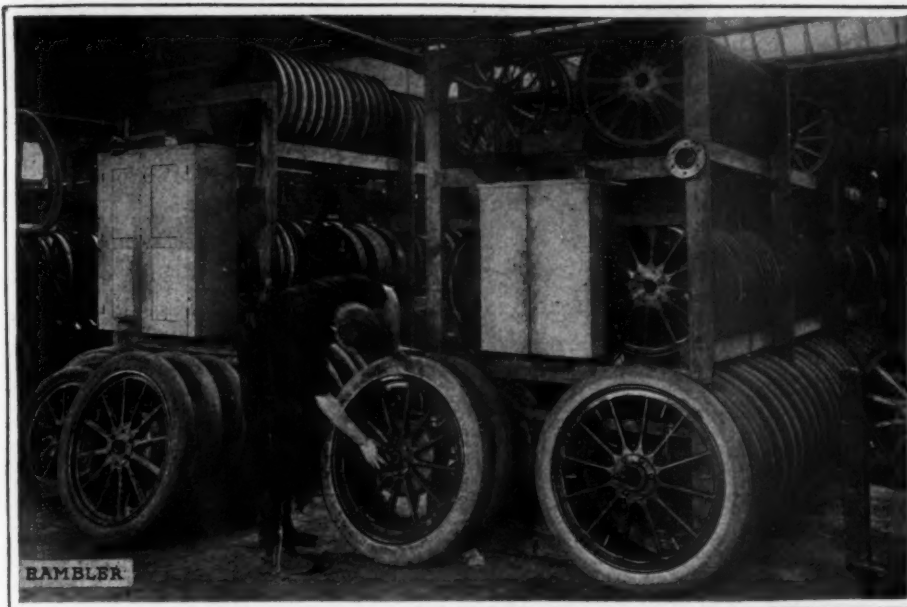


Fig. 3—A depicts a Gray & Davis lamp adjusted for acetylene; B portrays the same lamp ready for electric lighting, and C shows the exterior of the same lamp



WHEELS, RIMS AND TIRES

surface. The process of frictioning is conducted with a view to coating the duck with a layer of rubber, and this frictioning is done on both sides of the respective plies, excepting the inner ply as before stated. There are a wide variety of details which might be discussed profitably, as they relate to the manufacture of tires, but these are matters which are capably disposed of in the plants of the makers, and there are but two interesting points beyond,

i.e., (a) the selection of sufficiently large tires for the work to be done, (b) the proper inflation of the tires in service.

Hartford Rubber Works—As a non-skid leader, the wire-grip anti-skid tires of this make are attracting a good deal of notice, and the regular line of Dunlop clinchers and quick detachable tires are holding the conspicuous position to which they are entitled in view of the service rendered, autoists having taken kindly to them from the start.

Swinehart Rubber Company—The well-known solid tires of this make, in the regular Swinehart shape, are sustaining the Swinehart reputation, and at the exhibit the clincher truck tires and demountable rims occupied a position of prominence, while the cellular tires for taxicabs, touring cars, and light delivery wagons, represented the Swinehart idea in these fields of commercial activity.

Dayton Rubber Manufacturing Company—The Dayton airless tire is shown this year substantially as before, with the exception that detail structural changes have been made as experience seems to have dictated, particularly in relation to the treads which best serve, considering the respective duties to which these tires are assigned.

For 1910 the Dayton line will include a double grip non-skid tire, which shows a flat corrugated tread, with diagonal depressions about one inch apart.

Republic Rubber Company—Referring to Fig. 4 B, the staggar tread is the special feature of Republic tires, and it will be remembered that the Republic company was one of the first to introduce these forms of non-skid treads. It is claimed for this particular shape of the non-skid portions that they are efficient in resisting

AUTOING under pleasurable conditions or on a basis of profit depends more upon tires, perhaps, than upon any other division of the units which comprise cars. Pneumatic tires, while they swallow up road inequalities if they are small, have a further use in that they cushion shock when the inequalities surmount to and assume the proportions of obstructions. In addition to the duties as above indicated, pneumatic tires possess traction far in excess of the tractive ability of steel tires.

In recent times, the tendency has been in the direction of increasing diameter and section of tires in relation to the weight put upon them. It has been determined that the tires should be capable of sustaining the whole load when they are normally inflated, under conditions which will show but slight deformation of the tire section at the point of road contact. If, when a tire is inflated, it still shows a considerable deformation, it is then assured that the tire is not large enough for the work it will have to do, and the life of the same will be relatively short. Life in a tire is almost independent of the quality of the same, if the size selected is below the needs of the occasion. In other words, the difference in life between the best tire made and the most inferior product obtainable will be but slight in the presence of excess flexure.

There is one other lesson to be learned from this: autoists must keep their tires fully inflated; they must pump up to some definite right pressure. This cannot be done haphazard in the absence of a gauge for use in determining the pressure, and be sure that the condition will be right. The ordinary way is to pump (using a flimsy pretext for a pump) until the pumper is tired, give the tire a kick, say it is all right, and let it go. Under these conditions tire life will be short.

WISDOM OF SELECTION ADEQUATELY PORTRAYED

Notwithstanding the considerable cost to makers of automobiles, which is incurred in the adaptation of relatively large tires to their cars, they have elected to suffer a loss of profit in the interest of stability, preferring to deliver satisfaction with automobiles on the ground that satisfied customers expand sales out of all proportion to the cost of selling.

The exhibits this year included a wide variety of anti-skids, non-skids, and other ingenious treads which serve as a protection to the carcass. In the construction of the tires, machine processes are finding a wide use, but the fabric is probably not different from that which has obtained for several years. This fabric comprises from six to ten plies of cotton duck, which is said to be a sea island cotton, and it is "frictioned" before it is laid up. The number of plies vary from six with probably 14-ounce duck, to ten with probably 8-ounce duck. The inner ply is frictioned on one side only in order that the tube will not adhere to the inner



Fig. 1—Deplets Firestone tire for non-skid work

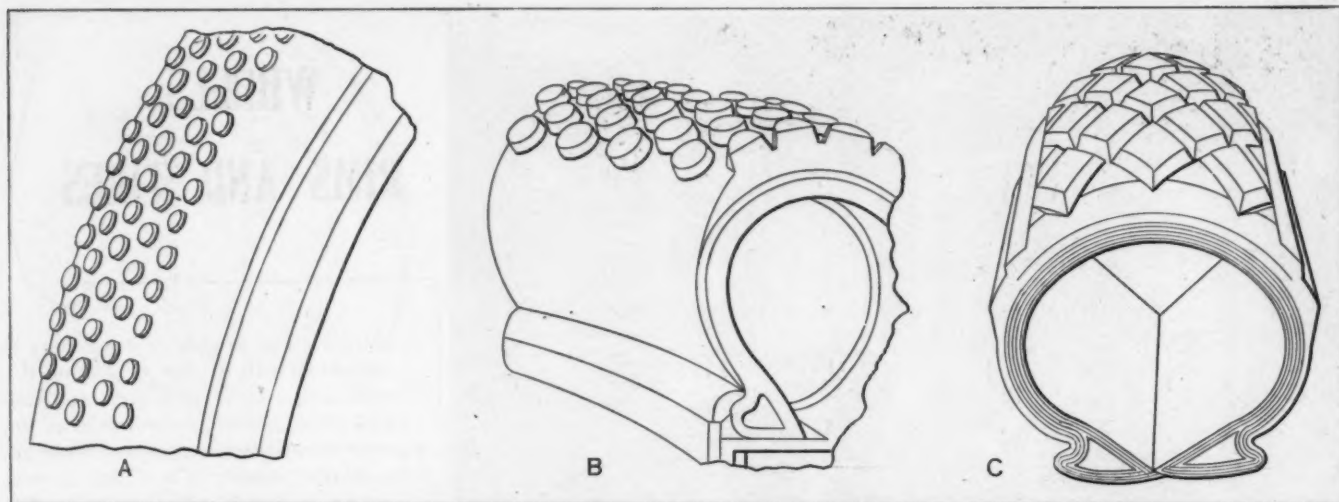


Fig. 2—(A) Shows the Calman non-skid, (B) Presents the Diamond non-skid, (C) Deplets the Ajax non-skid

skidding, but that they do not consume power to anything like the extent which obtains under certain conditions. The elongated oval stud offers a wide surface in the lateral plane, and at the same time permits the tire to swallow road inequalities without introducing a considerable amount of fabric resistance.

marked a degree that tire depreciation from this quarter is eliminated. The company also manufactures solid tires for carriages, which are made of a tough interwoven knotty mass of rubber. The Sterling inner tube is distinguished by its blue color.

G & J Tire Company—This line comprises clincher, Dun-

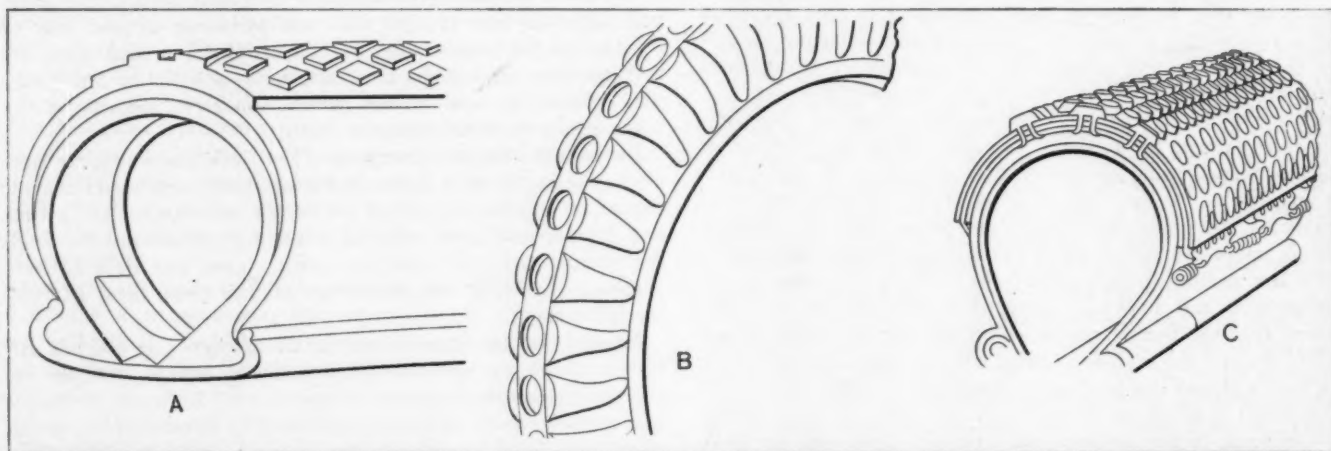


Fig. 3—(A) Indicates the Empire non-skid, (B) Shows the Kempshall non-skid, (C) Presents the Woodworth adjustable tread

Rutherford Rubber Company—This is the concern which makes Sterling tires and tubes. The company claims that it employed a special pre-cure of the rubber adjacent to the bead, and that this process has the virtue of resisting rim cutting to so

lop, and quick-detachable casings, and a line of inner tubes which are now so well known among autoists of discrimination as not to demand lauding. Both the round and Bailey treads are used on the three types which are made by this company, and it will

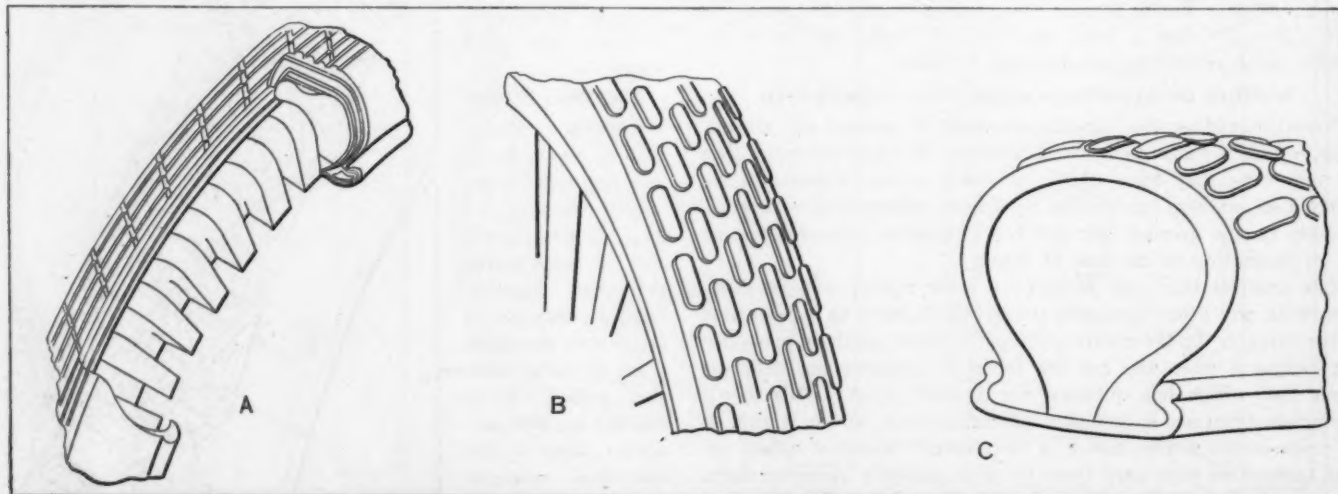


Fig. 4—(A) Depicts the Dayton airless tire, (B) Presents the Republic staggered tread, (C) Shows the Morgan & Wright non-skid

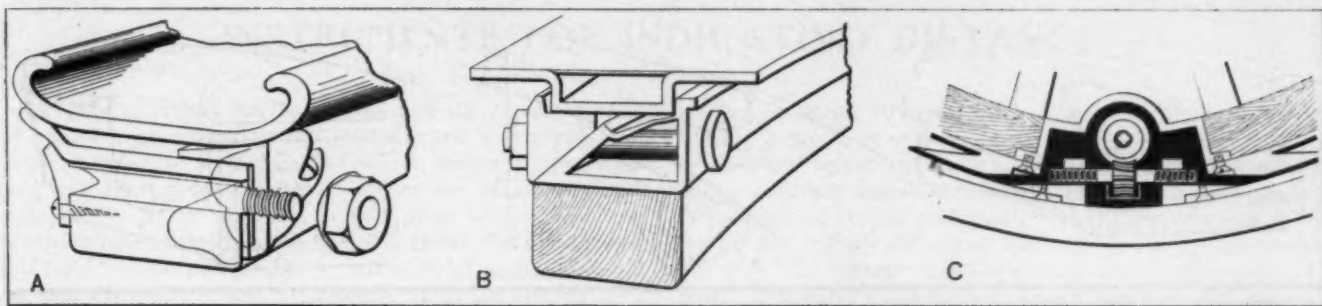


Fig. 5—(A) Is a section of a Diamond demountable rim; (B) Represents a section of a Fisk demountable rim, (C) Depicts the mechanism placed to lock Howard demountable rims

be remembered also that the industry includes a line of motor sundries consisting of tire sleeves, rubber axle bumpers, etc.

Michelin Tire Company—As per the custom of this well-known concern, its exhibit took on the atmosphere of a university, the idea being educational to a marked degree. The Michelin anti-skid tires occupied a prominent place, and they were admired, partly because the anti-skid feature is an integral part of the tire rather than an attachment, the tread proper being made of leather. In the leather tread, three to five rows of steel rivets are incorporated, the steel being mild in its characteristic,

stripped with diamond-like embossed figures holds the position of road contact responsibility, and from indications to be seen it is not an excess when it is said that the result obtained was in keeping with the best requirement.

Goodyear Tire & Rubber Company—In addition to the Bailey non-skid tire, a diamond shape heavy tourist type of tire is also in the Goodrich line, and is made in all the usual sizes. This tire is recommended by its maker for use under the most severe conditions, as in taxicab work, and for big limousines. The Goodrich Universal Q.D. rim is as popular as ever, and was one of the particular attractions at the Goodrich stand.

Diamond Rubber Company—Referring to Fig. 2 B, which shows the Diamond anti-skid, which is a tread of special rubber composition, out of which the anti-skid rivets appear, they being integrated with tread proper. This type of anti-skid tire has made a sufficient name for itself to warrant autoists to depend upon it under the most exacting conditions of service. The Diamond exhibit included its customary wide line of casings and tubes, and it is very likely that the rubber steering wheel exhibited attracted the greatest amount of notice. Besides this steering wheel, the Diamond Rubber Company puts out a line of battery boxes and rubber goods in general.

Ajax-Grieb Rubber Company—The line for this year includes a new Diamond tread tire, as illustrated in Fig. 2 C. It is an all rubber non-skid and guaranteed for 5,000 miles, and attention is particularly called to the design which is shaped to prevent flattening and squeezing into a smooth surface under severe conditions of load. This company offers in addition to this leader, its customary line of smooth and other designs of treads in casings, together with an accompaniment of inner tubes, and it is claimed for Ajax tires that the fabric is selected with particular reference to its mileage guaranteed, and that there are other structural details which will repay investigation.

B. F. Goodrich Company—This company offers this year a variety of sizes of its famous Palmer web tire, which has long been used on electrics, particularly in view of the small tire loss involved, it being the desire of electric vehicle owners to conserve the life of the battery, and obtain the greatest radius of travel per charge. The Goodrich wireless solid tire for motor trucks attracted notice. Then, there is the smooth and Bailey tread Goodrich, and beneath the surface will be found some carefully worked out designs with a view to interchangeability of tires, and other points of more than a little moment, which, to

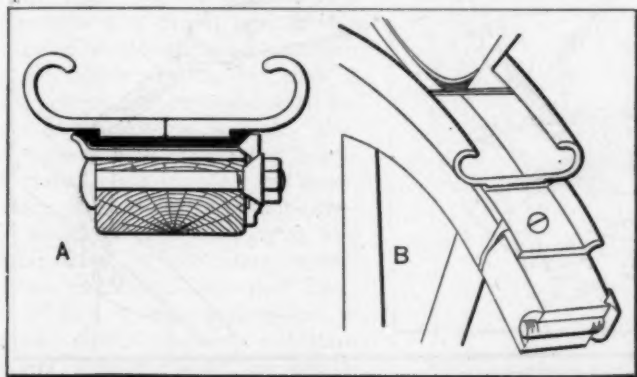


Fig. 6—Nadall combination demountable and detachable rim

hence soft, whereas the novice would expect to find the hardest grade of tool steel, hoping perchance that its hardness would accentuate its wearing qualities. A new idea is the Michelin valve spreader which holds the bead of the envelope firmly.

Pennsylvania Rubber Company—The rubber-wrapped tread and flat tread clincher tires of the Pennsylvania make, showed improvement by way of a tufted wire tread, securely held to the body of the tire by a specially woven fabric impregnated with a compound which the company claims has more than the usual merit, the composition of which is not stated. It is in winter service that these tires show up best, and autosists who ride Pennsylvanias are wont to put forward the pleasing contention that inclemency of weather is no longer a factor in view of the non-skid qualities of these tires.

Empire Tire Company—It is known by the checker tread as shown in Fig. 3 A in which it will be observed that a tread

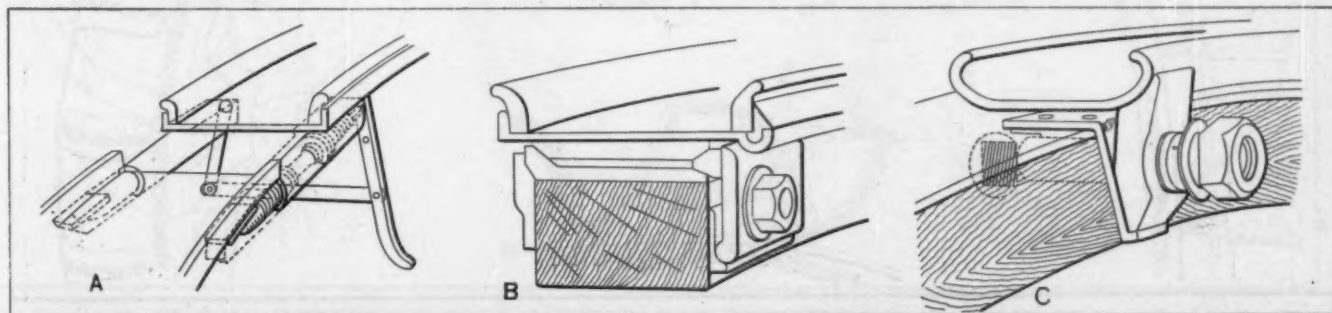


Fig. 7—(A) Shows Goodyear Doolittle demountable rim, (B) Presents the Firestone demountable rim, (C) Offers a section of the Empire demountable rim

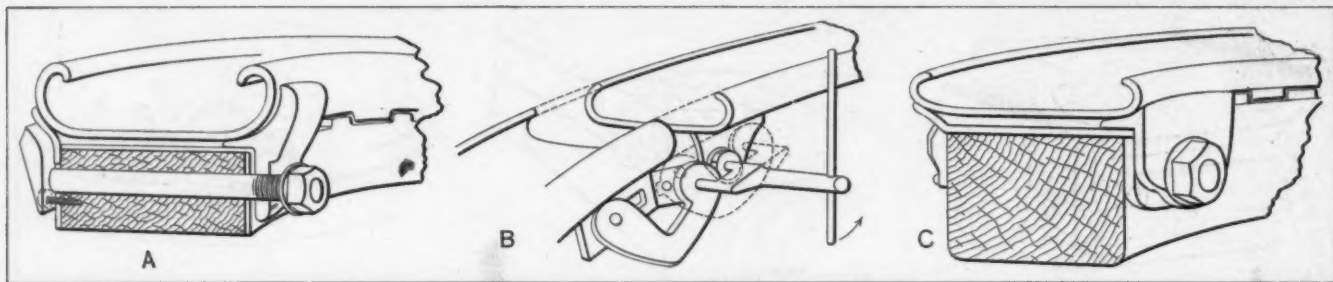


Fig. 8—(A) Is a section of a Michelin demountable rim, (B) Shows method of locking the Universal demountable rim, (C) Offers the Continental demountable rim in section

a considerable extent, are responsible for the Goodrich reputation, which, for uniformity, is well established.

Morgan & Wright—It is called the "Nobby," and looks as shown in C, Fig. 4. It is the new Morgan & Wright non-skid tire. In service this tire has just completed six months, and its trial under the most severe conditions involving what might well be called an abuse test, places it in the front rank of Morgan & Wright achievements. As the illustration clearly sets forth, the rubber projections on the tread are obliquely placed, they being

closes the name embossed on the tread diagonally, and the further fact that an efficient non-skid construction resides in the plan. This idea is already well-known to a host of tire users, and the capabilities of Firestone tires are best brought out in severe service. The regular line of Firestones was shown this year, including tubes, regular and odd sizes of casings, and, in fine, everything in tires that prudence dictates. The exhibit held wide interest and the novelty included in having the word "Firestone" on the tread continues to attract.

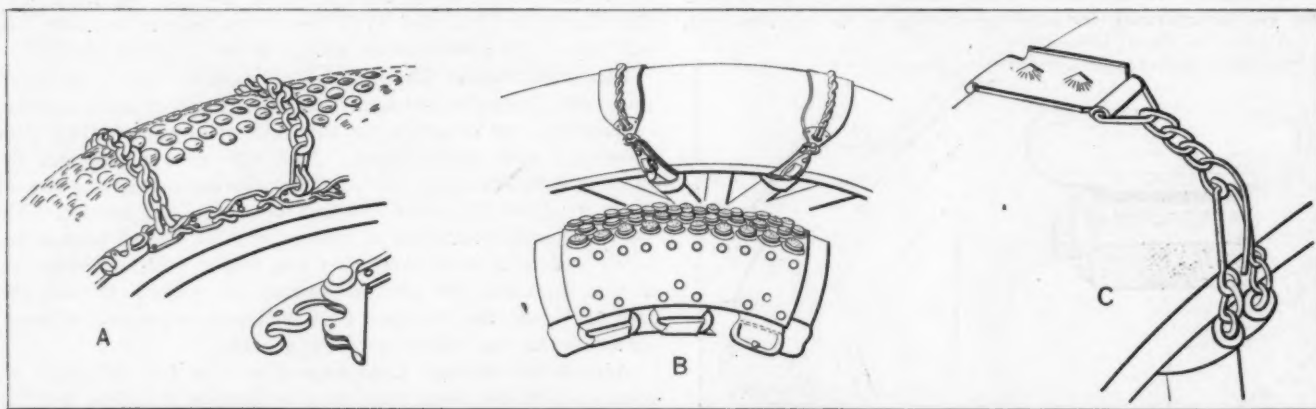


Fig. 9—(A) Portrays a section of the Weed tire chain, (B) Presents the Woodworth boot and chain, (C) Delineates the Travers single chain

of an oval form, and it was one of the main ideas of the company in running its protracted abuse test, to prove that this form and placing of the non-skid projections possesses especial merit. The company's exhibit was complete, including a wide variety of forms of casings, and its well-known line of inner tubes, so aptly displayed as to enable spectators to see at a glance the earmarks of quality.

Firestone Tire & Rubber Company—Referring to Fig. 1, which shows a portion of the tread of the Firestone, and dis-

American Stepney Spare Wheel Company—This line has been expanded to include all regular sizes of wheels as used on automobiles and as a quick-detachable proposition it is looked upon with much favor, especially among users who have tried it out. The Stepney "combination" wheel is the new idea, and by the use of this combination the necessity of carrying more than one wheel is avoided. There are many cars with different diameters of front and rear wheels; the Stepney combination wheel is the answer.

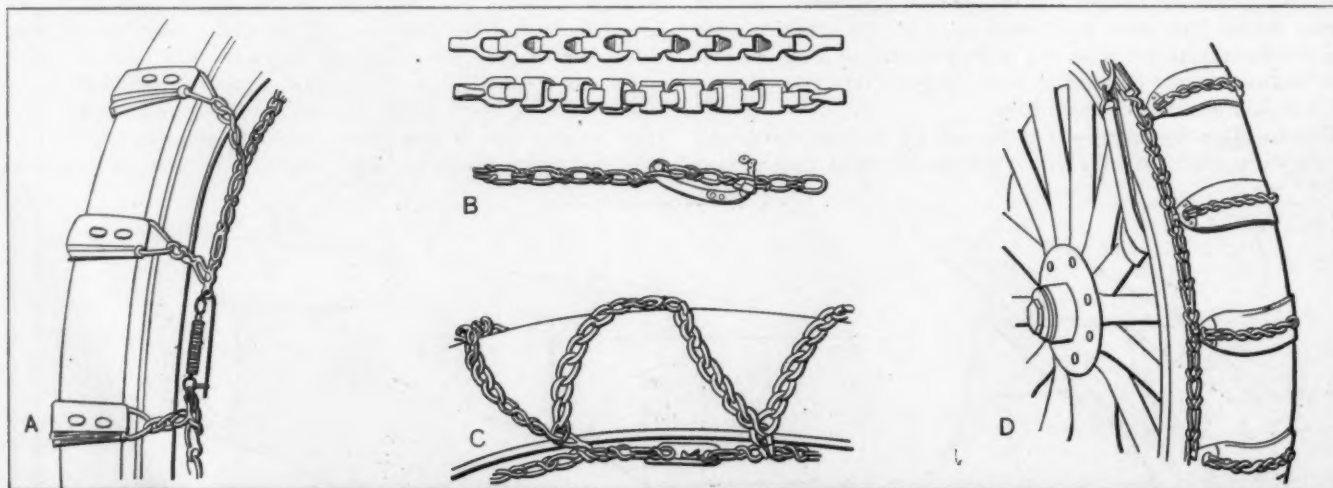


Fig. 10—(A) Depicts the Travers tire chain, (B) Shows Fox anti-skid chain, (C) Presents the Zigzag chain, (D) Pictures the Woodworth tire chain

INSTRUMENTS FOR INDICATING DISTANCE

DISTANCES which can be covered and the speeds that are possible of attainment are naturally the strong points of the automobile, and so it happens that the devices which record speed and distance have the first hold on the affections of the automobilist. Apart from the natural pride which the owner and driver take in their machines, the odometer and speedometer are of the utmost usefulness. In many cities magistrates will now take the word of the automobilist as to the reading of a \$50 speedometer in preference to the word of a policeman as to the reading of his 50-cent stop watch. Further than this, instruments are now being made which supply automatically an indisputable written record covering every movement of the machine.

For those who adopt the automobile from motives of business economy the odometer is indispensable. All commercial vehicles must be compared on a basis of mileage. The figures, too, give an invaluable check on the outlay for gasoline, lubricating oil and tires. No concern with any pretensions to a decent business organization would attempt to maintain an automobile service, or even a horse service, without keeping an account of the expense per mile. Private owners with a head for figures and statistics are often no less exact.

Auto Improvement Company—No less than fourteen styles and combinations of odometers, speedometers and clocks form the "Ever-Ready" line of this company—not to mention clocks separately and tachometers, equally adapted for use on motor boats and airships. "Ever-Ready" speedometers are operated on the centrifugal principle. They are not affected by climatic conditions, nor are they oversensitive. The hand is claimed to be absolutely steady at any speed from one mile an hour up. In combination with the indicating instrument is used a monocoil steel driving shaft, protected by a brass, steel-lined casing. Each speedometer is given a test of 2,000 miles actual running before it leaves the factory. The speedometers are made with 2 5-8, 3 and 4-inch dials, reg-

istering to 50, 60, 70 or 80 miles. They are offered separately, istering to 50, 60, 70 or 80 miles.

Cleveland Speed Indicator Company—This instrument embodies a radical departure from the usual practice in speedometer design. This can perhaps be best explained by saying that it does not indicate the actual speed of the car at any moment, but only the average speed for each one-thirtieth part of a mile. A moment's figuring will reveal; however, that when the car is running 30 miles an hour the averages will be taken over periods of but four seconds each.

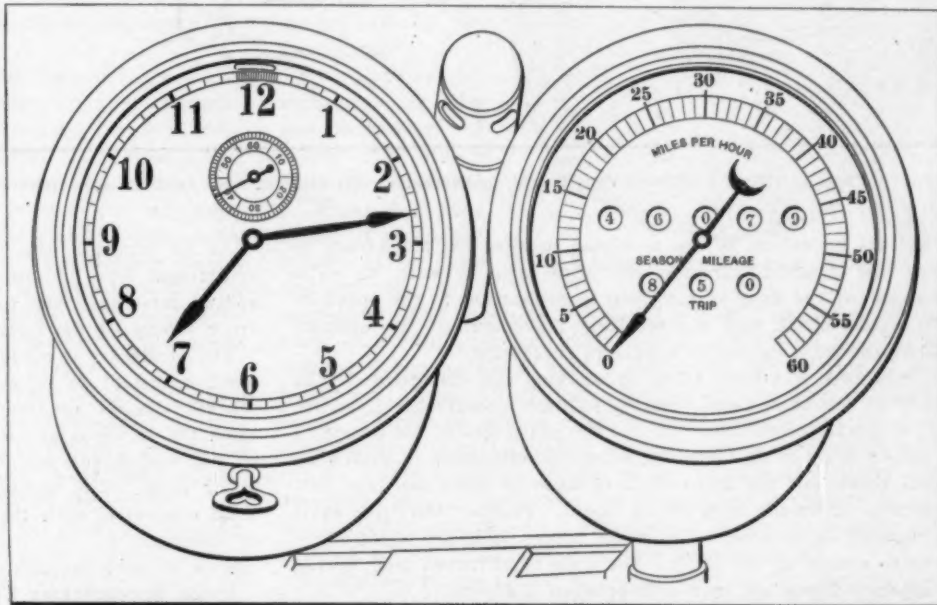


Fig. 1—Stewart multi-polar speedometer with clock giving distance, revolutions and time

Couch & Seely Company—The "Casgrain" speedometer manufactured by this company operates on the principle of liquid friction, and is claimed to have the longest scale of any device on the market. The horizontal cylindrical case of the speedometer contains a concentric cylinder bearing on its circumference the scale figures, and held against rotation by a coil spring. Within this cylinder is a shaft with paddles actuated from the front wheels. The case is filled with a liquid, which

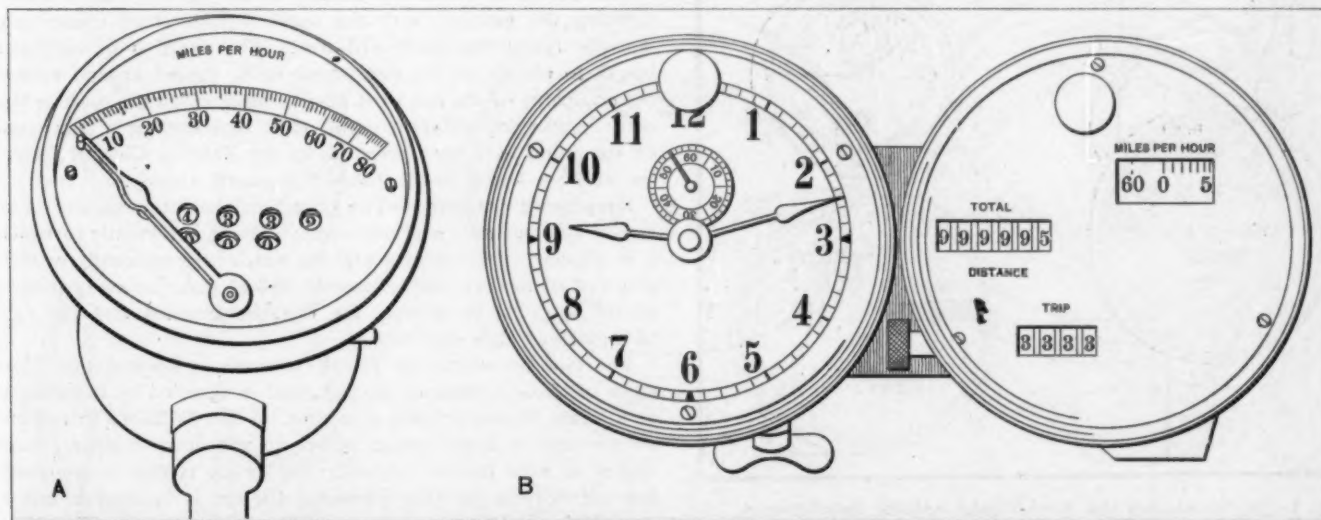


Fig. 2—(A) Presents new Jones speedometer, (B) Shows Warner's magnetic speedometer with clock

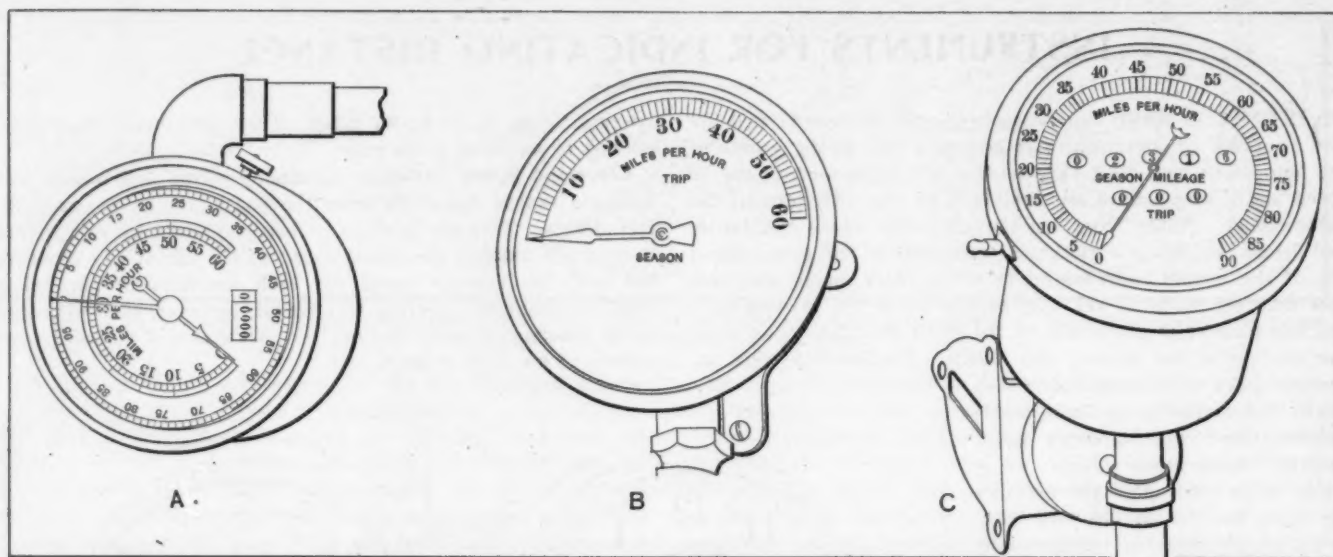


Fig. 3—(A) Offers Hoffecker centrifugal speedometer, (B) Depicts the Autocar speedometer, (C) Presents Stewart Model 19 speedometer

when set in motion by the revolving paddles has a tendency to drag the cylinder carrying the scale around with it. The strength of the drag is naturally in proportion to the speed of the paddle shaft, and the resulting movement of the cylinder causes the scale figures to appear in succession.

Great care has been taken in working out the design. The liquid of course is a non-freezing solution, presumably glycerine, and elaborate productions prevent the possibility of the escape of a single drop of it. The horizontal paddle-shaft is driven by bevel gears, but the drive shaft is made to enter the case considerably above the level of the liquid. Further, the drive shaft is cut with an exterior worm which forces back any liquid which tries to escape up the shaft. The scale is 28 inches long, giving a separate figure for each mile between 1 and 65.

Hoffecker Company—"The steady hand," as featured by this company, is demonstrated in a way which never fails to draw a crowd. One of the speedometers, running at a fairly constant speed, is mounted on a frame moved by a cam action which from time to time gives it a violent jolt. The indicating hand, nevertheless, remains as steady as if only painted on the scale, though moving freely when the speed is varied.

As to principle, the Hoffecker is another exponent of the centrifugal type, but incorporates with the usual mechanism a special damping device to check the small variations which arise from jolting of the instrument.

The Hoffecker is made in three sizes, with 3, 3 1-2 and 4-inch dials, scaled to 50, 60 and 90 miles. With the smallest size a separate season and trip odometer of the well-known type is used, but in the larger forms both are incorporated in the body of the instrument, and the trip mileage indicator is of a peculiar form. The mileage is indicated by a hand moving on a scale concentric with that of the speed indicator, either inside or outside of it. The season odometer is of the usual type, with figures showing through a window.

Jones Speedometer Company—The feature of the Jones exhibit which attracts the most attention is the new "Live Map," a sort of animated Blue Book. It consists of a cardboard disc perhaps ten inches in diameter, the rim of which is marked off into sections corresponding to miles on the route which it is desired to follow. Separate discs are used for each route, each disc being for a maximum distance of 100 miles. The route directions are marked off on the rim. The disc is revolved by a connection with the wheels so that points on its circumference pass in turn under a stationary pointer. The pointer always indicates the position of the automobile, and the appropriate directions may be read off the disc.

The device is extremely simple, consisting only of a frame carrying the gearing, with the usual flexible shaft connection, and the removable cardboard disc. The shaft is of sufficient length to permit of the instrument being passed around among the occupants of the car, or it may be hung up on the dash or the seat. About 600 different cards, each representing a maximum of 100 miles, have been prepared by the Touring Club of America, and are listed in the Jones Company's catalog.

Recometre Company—The object of the "Recometre" is to record automatically every movement of the automobile to which it is attached. It contains a tape on which is permanently printed a record of the car, both in motion and at rest, for every minute of the day. If in motion, the distance traveled and the rate of speed are also recorded.

The tape on which the record is made is marked into divisions of about a tenth of an inch, and is unrolled by clock-work at the rate of one division a minute. A line is traced in red ink on the tape by a pen which moves up and down regularly once for every mile the car travels. The result is that a saw-tooth line appears on the tape whenever the car is in motion, and a straight horizontal line as long as the car is at rest. The num-

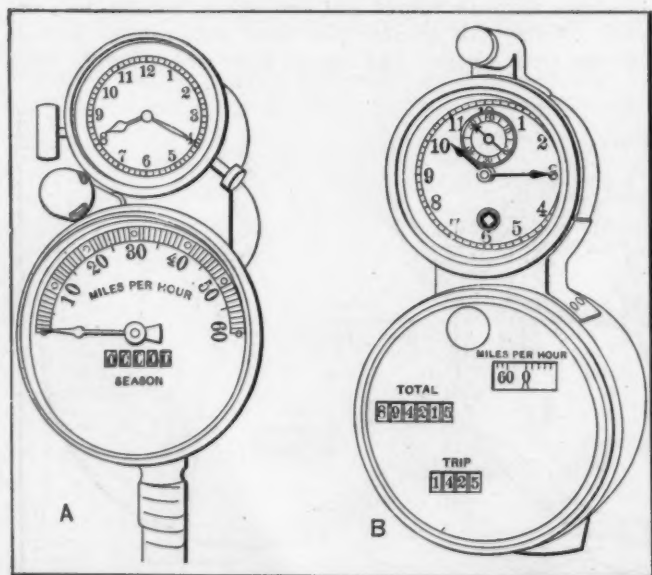


Fig. 5—(A) Illustrates the Ever-Ready reliable Speedometer, (B) Depicts the Warner combination speedometer

ber of teeth in the saw-tooth lines indicate the number of miles the car has traveled, and the number of minute spaces included in the base of each tooth show the time taken to cover the mile.

The tape, with its record for the past half-hour, is always visible through a glass door in the instrument. It acts as a clock and calendar, for the month, day, hour and minute are pointed out on it by the pen. Each tape lasts one week. The instrument includes a speedometer and a season and trip odometer.

Stewart & Clark Mfg. Co.—The Stewart "Multipolar" speedometer is shown in a number of combinations, both for attachment to the dashboard and for mounting on the special standards introduced by this company. The principle and operation of the instrument differ in no way from the forms already found satisfactory. The principle, of course, is magnetism, the influence of revolving magnets upon a disc held by a spring. The drag upon this disc is in proportion to the speed of the magnets, and the indicating hand is mounted on the upper end of the disc spindle.

The rotor of the instrument driven from the front wheel consists of a ring in which are imbedded four permanent magnets. These are accurately machined from imported tungsten steel, made to special analysis. They are hardened, magnetized, edged and tested before being assembled in the rotor. The central stud on which the rotor revolves is recessed to receive a light spindle on a jewel bearing; the spindle carries a disc of alloy metal having a low resistance, and above this the indicating pointer which appears over the scale. The disc attempts to follow the magnets, but is restrained by a light spring. The indicating elements are extremely light and so have little inertia; the action of the instrument is at once sensitive and steady.

Veeder Mfg. Co.—This company prefers to call its speed indicator a tachometer, although this term is generally accepted as meaning an instrument that reads in revolutions per minute rather than in miles per hour. No matter what name it goes by, the instrument is one of the simplest on the market. The only moving part is a small paddle wheel like that of a centrifugal pump. The casing of the paddle carries a small vertical glass tube, and is filled with a red liquid. When the paddle revolves the liquid is driven more or less completely out of the casing, and is forced to rise in the glass tube. The level to which it rises at once indicates the speed.

Adjustment is possible at any time. As long as the level of the liquid is at zero when the car is at rest, the indications must be correct. If the level should not be at zero, it can be brought to that point by turning a small adjusting nut. Another feature is the use of a double scale, one for high speed and one for low speed. Either of these can be brought into use by means of a valve. One is graduated up to 30 miles an hour, and gives

accurate readings at low speed; the other is graduated up to 60 miles an hour for high-speed work. Other combinations can be had as desired.

Warner Instrument Company—Warner "Auto-Meters" are continued in the forms familiar from last season, both in the well-known original shape and in the newer style with a circular face. The mechanism of the two styles are identical, working on the magnetic principle. The indication is by means of a moving cylindrical band, bearing the figures, and a stationary pointer. The band is moved by the magnetic drag from the rotating magnet mounted on the main shaft.

The latest development is the new odometer, of which the season and trip faces read to 100,000 and 1,000 miles, respectively, instead of to 10,000 and 100 miles, as is



Fig. 6—Jones Live-Map route indicator

customary. The instrument "de luxe" is a clock and speedometer twin, each with 4 1/2 inch dials, and provided with an electric lighting device by which light is thrown on the interior of the transparent dials. Other forms include the old-style indicator, either separate or with a clock mounted on top, and the new style circular face instrument separate and with superimposed clock. Another feature of the exhibit is the anemometer for aeronautic use, an instrument for measuring the velocity of the wind. When mounted on a aeroplane it is used to indicate the speed at which the machine is passing through the air.

In conclusion, one cannot help remarking on the ingenuity and knowledge of mechanical and physical principles which are displayed, individually and collectively, in the design of the speedometers on exhibition at the various stands. Centrifugal force, magnetism and friction all have their representatives, and in theory all are equally interesting. The working out of the application of the principles, and the arranging of the more or less complicated mechanism within the compass permitted a speedometer, shows mechanical training of a high order. The instruments all appear to be of solid and substantial construction, well balanced and with ample bearing surface.

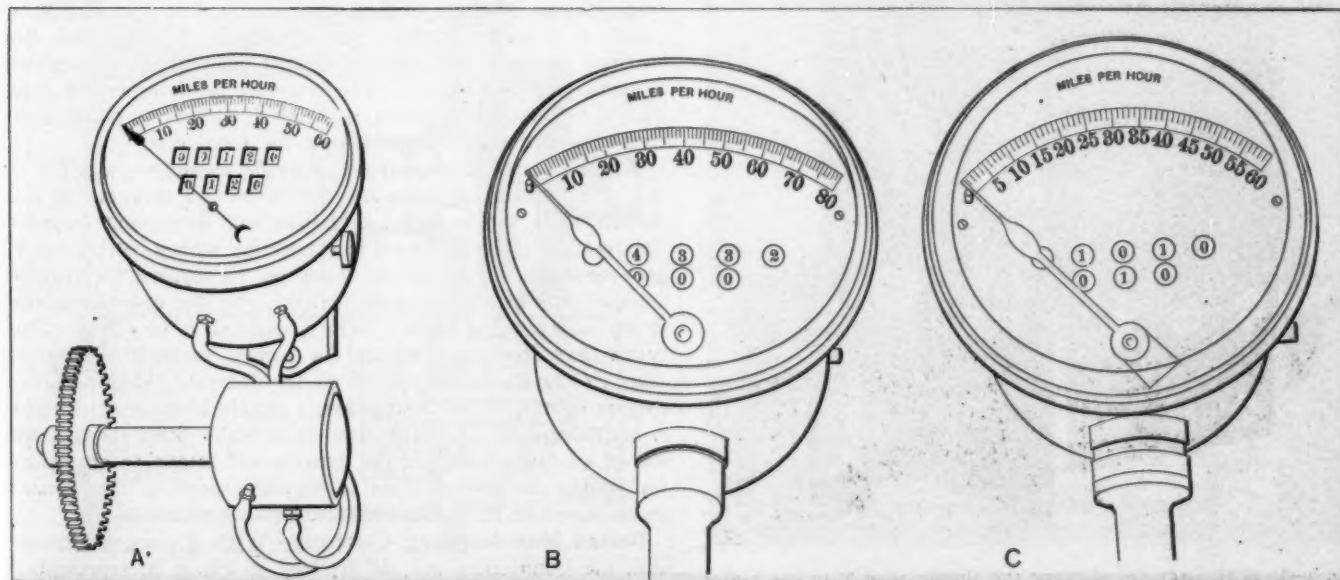


Fig. 4—(A) Offers the new Troy speedometer, (B) Depicts the new Jones speedometer, (C) Presents the Jones Model 19 speedometer

IGNITION METHODS ASSUME DEFINITE FORM

SPARKING equipment as it is to be obtained in the open market may be classified substantially as follows:

- (A) High-tension magnetos.
- (B) Low-tension magnetos.
- (C) Low-tension magnetos with step-up transformers.
- (D) High-tension magnetos in dual relation.
- (E) Batteries with single coil.
- (F) Multi-unit coils.

Battery and coil systems include both storage and dry batteries, and in certain cases (E) a single special coil, in conjunction with a high-tension distributor, is utilized to the exclusion of a multiunit coil. An example of this character of work by Splitdorf will be found in Simplex cars.

Multiunit coils (F) are widely used as supernumerary to magnetos, and these coils are subdivided in turn (a) with master vibrator unit, (b) with a vibrator for each unit; occasional examples of coils without vibrators are to be seen.

Among the ignition systems of competence which are used in automobiles of distinction the following are conspicuous examples:

U & H Master Magneto—Fig. 1 shows the type C B 4 magneto of this make, which is designed for three, four, six and eight-cylinder work, and, according to J. S. Bretz Company, New York, distributor of this magneto, its application is limited to motors with a bore which does not exceed 4 1/2 inches. Other types of U & H magnetos are provided for the several other applications. The illustration is sufficiently comprehensive to limit the need of further discussion, unless to point out that the wire *T*, shown at the interrupter end of the magneto, registers with the timing mechanism, and in the act of timing the whole operation is limited to the simple process of forcing the wire *T* through the registering holes, which may be easily accomplished by rotating the armature until the wire enters.

Pittsfield Spark Coil Company—The magneto as made by this company is depicted in Fig. 2, in which *A* is a section at right angles to the armature shaft and *B* is a section in the plane of the armature shaft cutting its axis. This magneto is of the strictly high-tension type, containing a primary and

secondary winding; the windings are stationary.

Witherbee Igniter Company—Referring to Fig. 3 of the Witherbee magneto, *A* is a section at right angles to the armature shaft, and *B* is a section in the plane of the armature shaft cutting its axis.

It is claimed for this magneto that it is a generator of current for ignition purposes of such competence that it will work successfully over the wide range represented by merely turning the armature by hand or rotating it at the highest possible speed consistent with motor practice. This product is made at Springfield, Mass.

Remy Electric Company—Referring to *C*, Fig. 3, which is a section of a new Remy magneto (the Remy plant being at Anderson, Ind.), it is shown that the coil is concentric with the armature shaft, flanked by polar extensions, and, taking the section as a whole, it presents an opportunity to study the design and note the character of the work. The Remy company has put out two models for 1910, one of which, type *S*, is for two, four and six-cylinder cars with high-powered motors.

Splitdorf Laboratory—The 1910 Splitdorf magneto is depicted in section in Fig. 4 *A*, representing the new low-tension type, with annular type ball bearings at all points, and a very efficient armature winding in a well-designed rotor. The magnetic field comprises six permanent magnets, made of a special grade of magnet steel, properly hardened, and the details throughout are up to the usual Splitdorf standard. The Splitdorf plant is in New York City.

Kokomo Electric Company—The Kingston Magneto as made by this company at Kokomo, Ind., is shown in *B*, Fig. 4, which is a section through the armature. Annular type ball bearings are used and the mechanical construction throughout is up to a fitting standard. The armature is of the bobbin type, with a high-tension winding, and the condenser is placed concentric with the armature shaft, at the front end.

Apple Electric Company—The Apple, as shown in *A* Fig. 5; is a direct-current dynamo and differs from a magneto in that the fields are wire-wound rather than with permanent magnets. This type of ignition is used in connection with a battery (storage) and coil. The battery floats on the system, is charged automatically as the demands indicate, and the coil works just in the same way as when a battery, unaided, is employed. This system has done good service for several years, and in many cases electric lights are run off of the dynamo; just now, when electric lighting is on the increase, it should be in brisk demand. A constant speed of the dynamo is brought about through the use of a conical pulley on the dynamo and means (a governor) for sliding the conical faces to regulate speed of the dynamo as the speed of the motor changes.

United Manufacturing Company—With a master vibrator unit, the Connecticut coil, as depicted in Fig. 6 *A*, represents a system which has taken a high rank among motorists. The box

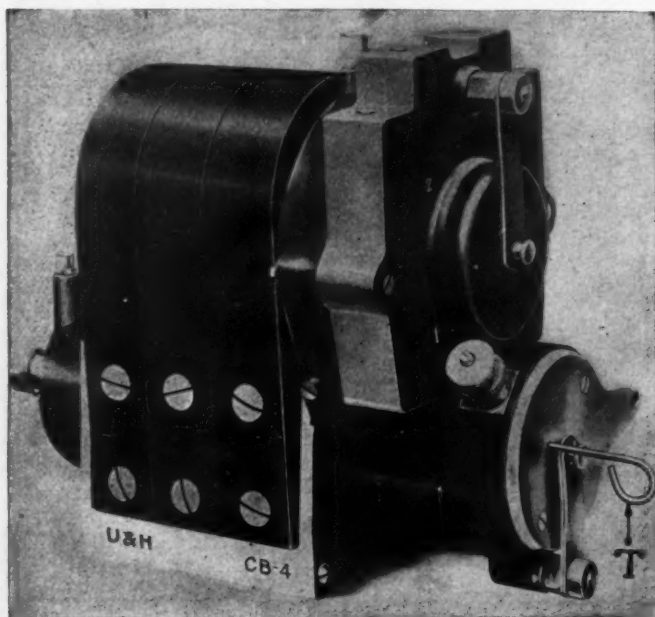
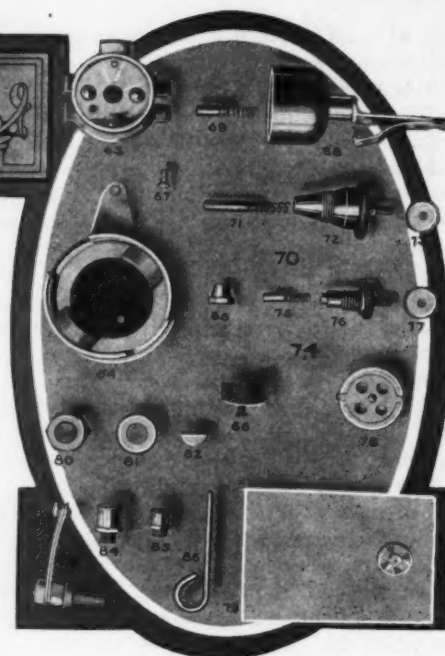


Fig. 1—U & H magneto, showing the timing wire *T* in the registering holes, this being the only adjustment required

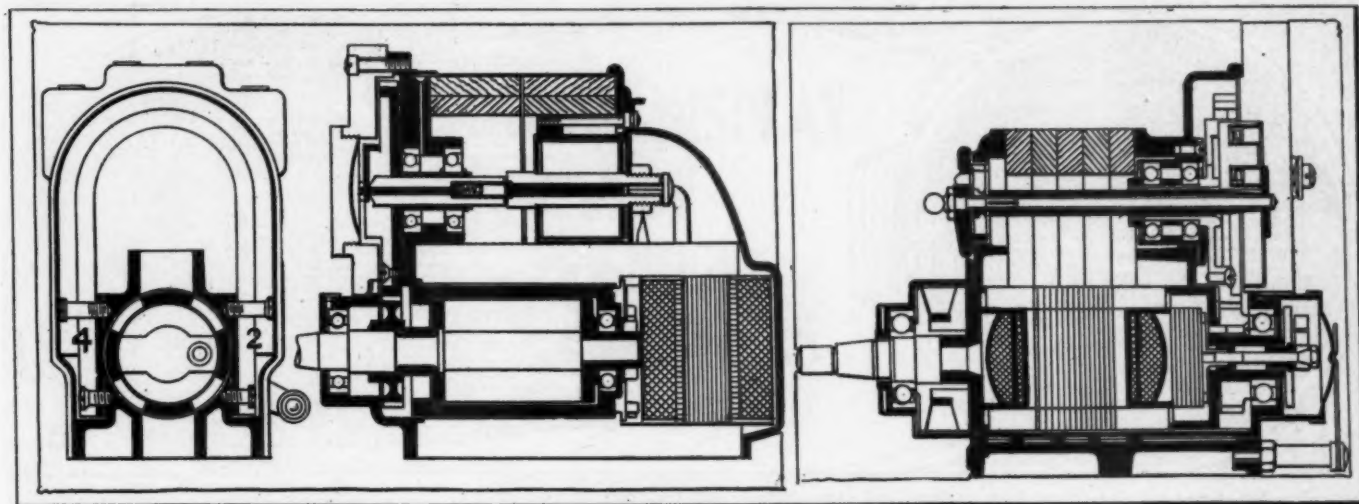


Fig. 2—(A) Section of Pittsfield magneto at right angles to armature shaft. (B) Section of magneto in the plane of the armature shaft. (C) Section of Herz magneto

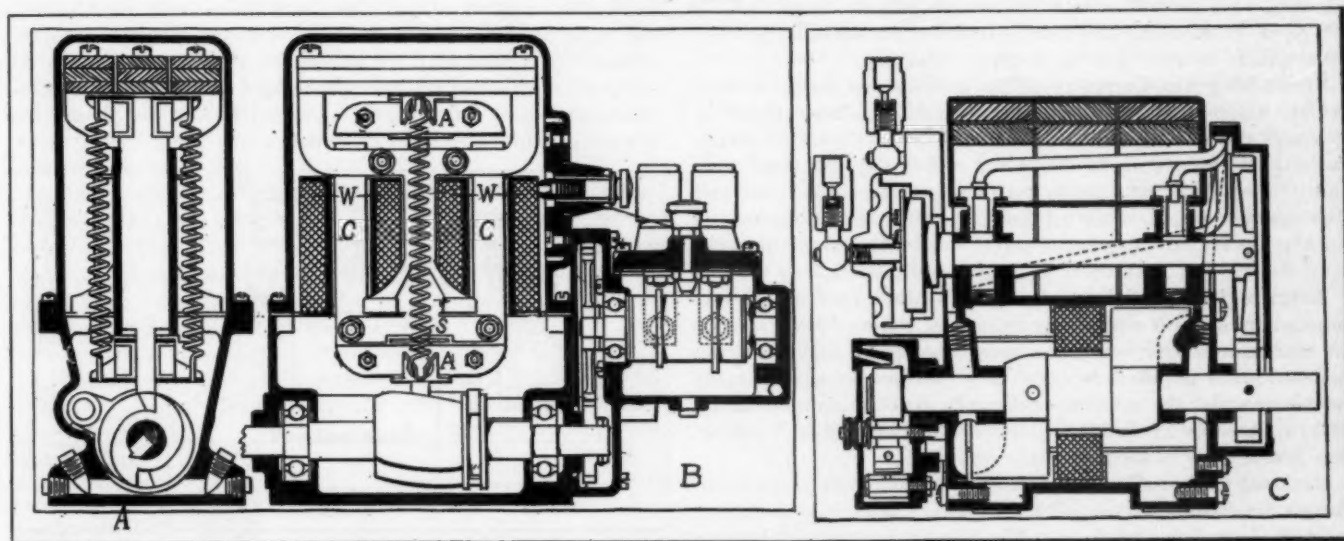


Fig. 3—(A) Section of Witherbee magneto at right angles to armature shaft. (B) Section of magneto in plane of armature shaft. (C) Section of new Remy magneto

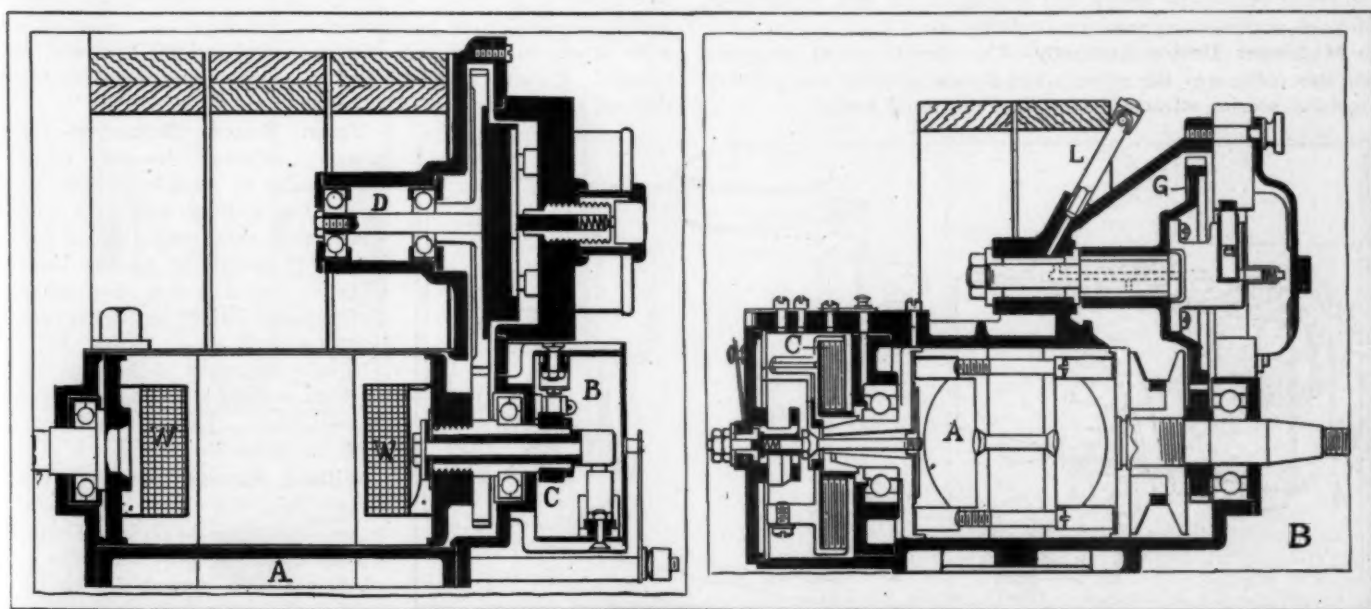


Fig. 4—(A) Section of Splitdorf magneto, showing annular ball bearings for mounting, (B) Section of new Kingston magneto

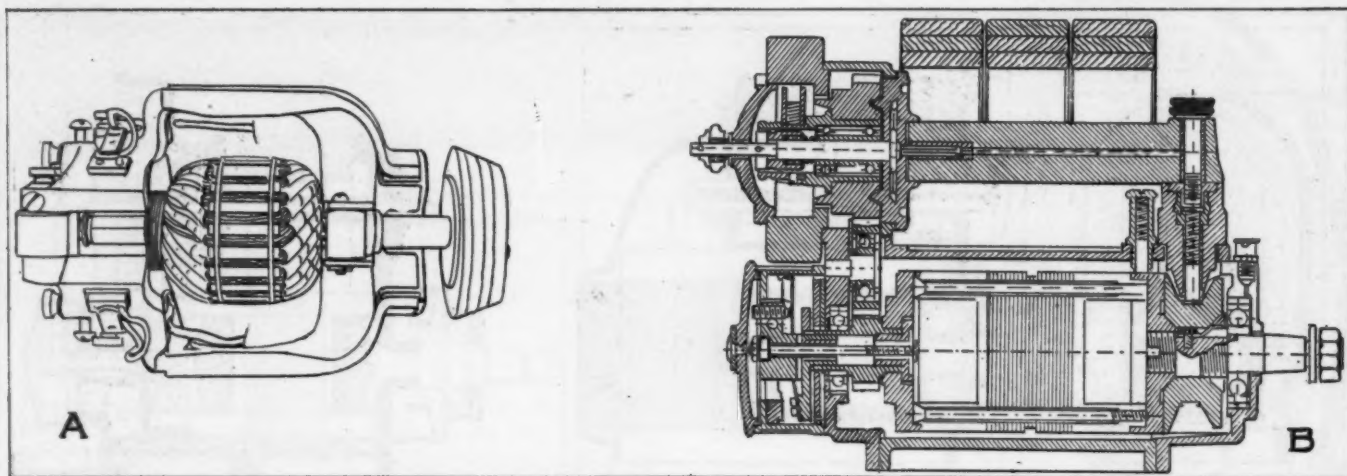


Fig. 5—(A) Apple dynamo in section, the same being used for ignition and lighting. (B) Nelmellor magneto in section

holds five units, four of which are coils and the fifth is the master vibrator unit. All adjustments are made on the master vibrator, and, as will be readily appreciated, the spark will be the same in strength and potential difference in all cylinders. This system is used with or without a magneto.

Bosch Magneto Company—This well-known make of magneto is made in all high-tension types, and the illustration, Fig. 7, shows the connections of the "dual" system. In this system the magneto is electrically connected with a step-up transformer and it is optional with the user to run on the magneto or coil. The magneto is so designed that it serves as an interrupter for the battery circuit when the coil is in use, and the latter is equipped with an interrupter to "start on the spark."

Electric Storage Battery Company—Maker of the "Exide" battery; in ignition work it is delivered in two forms; one in the conventional way with the usual number of cells in series enclosed in a polished wooden case, charged complete, ready for service, and the other comprises the regular ignition battery with an emergency battery in the same case. The home of the "Exide" is Philadelphia, Pa.

National Carbon Company—This company makes the well-known dry battery known as the Columbia, and, having experimented along lines to develop the battery for use in ignition work, has brought it up to a high state of perfection; it is made in all regular sizes; headquarters are at Cleveland, Ohio.

Vesta Accumulator Company—This company presented a full line of electric lamps and headlights, as well as batteries for all purposes, as sparking, lighting, etc.

Motsinger Device Company—The direct-current magneto of this make was the novelty and a new machine for primary ignition service attracted more than the usual notice.

Atwater Kent Manufacturing Company—A simplified form of the spark generator of this make was shown and attracted the usual notice. The Kent idea is one good spark at the right time, and it has been shown that the battery is conserved if the remaining useless sparks are dispensed with. The unisparker was also on hand, it being a simplified form of the spark generator, consisting of a contact maker, distributor, non-vibrating-coil, condenser and switch.

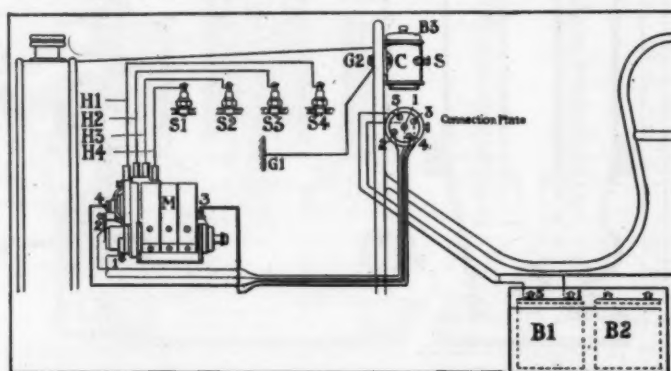


Fig. 7—Bosch dual ignition system in diagrammatic form

Emil Grossman—Of "Redhead" spark plug fame; this grade of spark plug has attracted a considerable amount of notice due to the use of porcelain which stands a high electrostatic strain and is impervious to moisture or lubricating oil. The plugs were shown both with porcelain and mica, and the "redhead" is branded on every spark plug of this make; it is the Grossman sign of spark plug quality to which patrons subscribe.

Union Battery Company—This company exhibited dry cells of all sizes, some of them especially designed for ignition work. In addition to cells, there was a line of flash lights. It is claimed for the Union make of dry cells that they are of high ampere output and deteriorate but slowly, if at all. The No. 6 cells have an output, each, of 34 amperes of current at 1.6 volts electromotive force. These batteries are made at Belleville, N. J.

Willard Storage Battery Company—This old and well-known maker of storage batteries offered a line of sparking batteries, some of which are large enough for electric lighting as well.

(Continued next week.)

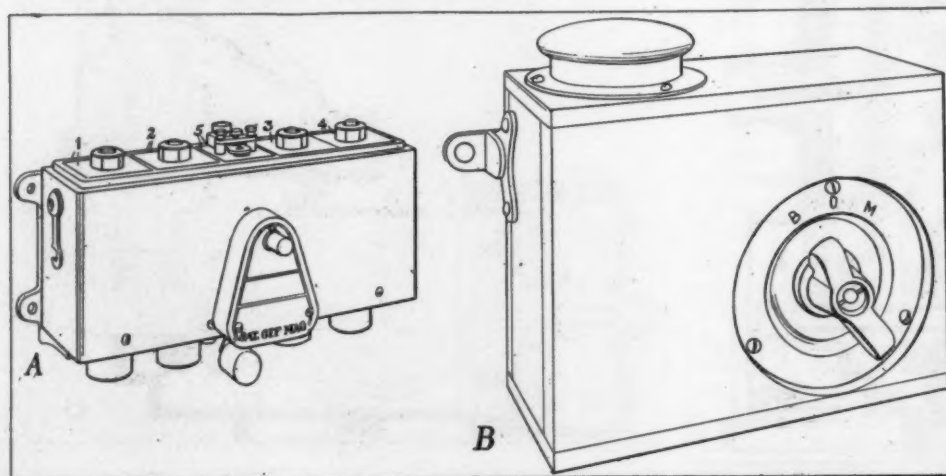


Fig. 6—(A) Connecticut coil system, with unit coils and master vibrator unit. (B) U. & H. coil as used with magnetos of the same make



COMFORT to the occupants of the vehicle is the main idea of all shock absorbers, and similar devices, although it does not require any very complicated reasoning to show that the same arrangement which makes riding more comfortable, reduces the wear and tear on the chassis parts to a minimum. This latter, in a word, spells economy of maintenance, since repair parts and the cost of installing them are properly included in the maintenance cost.

However, their real reason for existence is the smoothing out of rough roads, the other reason being an afterthought. In this respect the value of the shock absorber depends entirely upon the extent to which it absorbs shocks—the greater extent to which this is done, the greater the value of the device. As a whole, they may be divided into three great main classes—the one depending upon non-compressibility of fluids; the second, frictional contact between two or more surfaces in contact; and, third, coil and other springs. Into one or the other of these three main

classes, all forms of shock absorbers, or road-smoothers as they have been called, may be accurately divided.

Ernst Flentje—Coming in the first class, the Flentje absorber, made in Cambridge, Mass., uses glycerine, which is contained in a vertically placed cylinder, connected to the axle, while a piston moving inside the cylinder is fastened to the body or frame. This form has been on the market for several years, but for the season of 1910 has been changed somewhat. A spring has been added on top of the packing of the stuffing box, and a hollow piston rod with a regulating valve. Fig. 1 shows a section through the improved device as well as an exterior view, which gives a good idea of its appearance.

Kilgore Manufacturing Company—In the second figure is shown a section through the product of the Kilgore Manufacturing Company, of Boston, which is also a fluid device. In this there are no valves, a by-pass being provided in the side of the cylinder, within which the piston reciprocates. The resistance which this by-pass and the walls of the cylinder offer to the passage of the air forms the cushion upon which the passengers actually ride.

Hartford Suspension Company—At the automobile shows this device is shown in practical operation on a couple of miniature cars. The friction between several circular plates, some of which turn with an arm attached to the frame, while others are attached to the other arm, which is fixed to the axle. The tension between the faces of the plates is adjustable, a nut to bind the

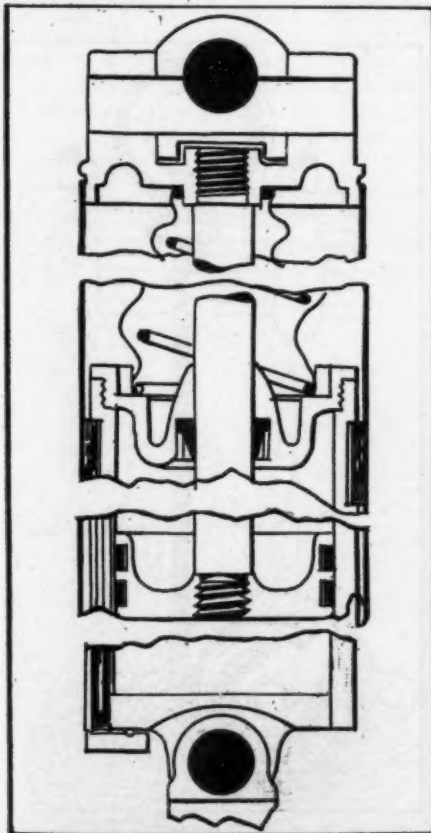


Fig. 2—Kilgore piston device

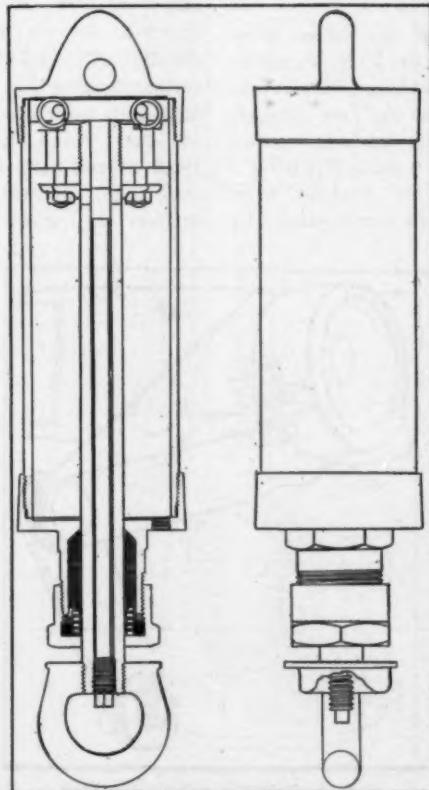


Fig. 1—Flentje glycerine cylinder

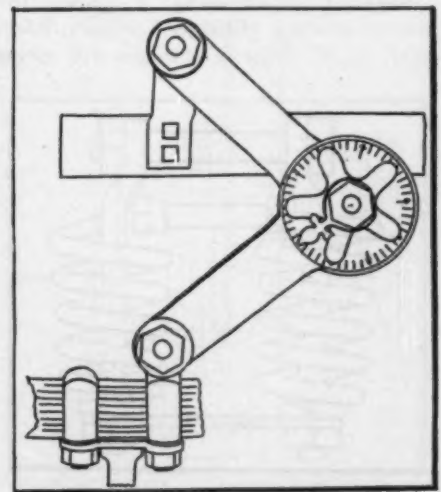


Fig. 3—Hartford Shock Absorber

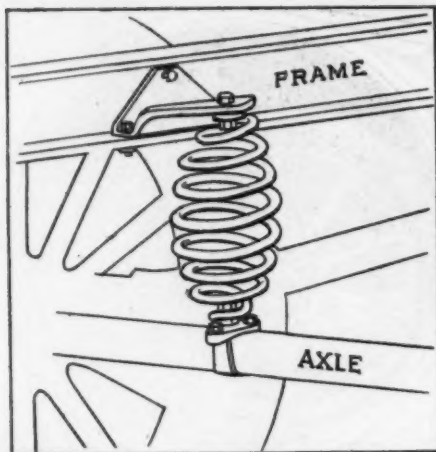


Fig. 7—Sager spiral spring absorber

Manufacturing Company, Newark, N. J. Two friction planes are used, one being an integral part of the arm fixed to the frame, while the other is made up of an extension of the other or axle arm. The contact between the two is adjustable.

Gabriel Horn Manufacturing Company—Fig. 4 shows the Foster shock absorber, made by the Gabriel Horn Manufacturing Company, Cleveland. This is new and works upon a new principle. An elliptical cup is fastened to the side member of the frame, which is encircled by a friction band, lined with a specially prepared friction lining. The latter has two arms which attach to the axle, or rather to a lever which attaches to the axle.

Shippey Company—Like the preceding, the Shippey absorber, made by the George E. Shippey Company, Pittsfield, Mass., is of the frictional form. Sliding friction enters here, however, the free end of the device sliding up and down between the other two fixed ends, which are tightly held together.

Acme Spring Check Company—Practically all of the details of the Shoc-sorber, made by the Acme Spring Check Company, Broadway, New York City, are shown in Fig. 5. In this the working principle differs from the preceding, as a sectional filling of second growth hickory works against a ring, which is provided with steel rollers.

F. R. V. Sales Company—Springs form the basis of a goodly number of shock absorbers. Of these, the F. R. V., made by the company of that name, located on Broadway, New York City, uses a spring shock which is connected to the axle through the medium of a chain. The latter winds up or unwinds according as the load is decreased or increased. Fig. 6 shows this form.

Bicalky Auxiliary Spring Company—This Buffalo firm makes a road-smoothing device which bears the firm's name. In this the spring assumes a spiral form, being wound up by the rise of the car body.

Sager Company—Fig. 7 shows the product of the J. H. Sager Company, Rochester, N. Y. This is a simple coil spring

surfaces against one another being provided for this purpose. It is made by the Hartford Suspension Company, Jersey City, N. J., and is shown in Fig. 3.

Westen Manufacturing Company—Like the Hartford, this is of the circular frictional plate type and is made in three sizes for three differing weights of cars by the Westen

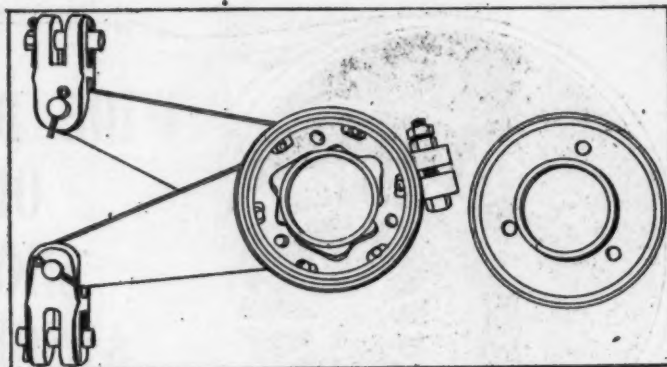


Fig. 5—Shocsorber utilizes hickory for a friction surface

interposed between the frame and axle in such a way as to be in tension during the rise of the body and in compression during the fall. This makes for long life, which quality is increased by the shape given to the springs themselves.

Baldwin Chain Company—This device is much like one of those previously described—that is to say, it consists of a coil spring attached to the two separating parts, the axle and frame, through the medium of a direct attachment in one case, and a chain which is paid out or taken in in the other.

Supplementary Spiral Spring Company—As the name would seem to indicate and as the Fig. 8 shows, this consists of a pair of small spiral springs interposed between the scroll end of the usual side spring and the frame or shackle, as the case may be. This is made by the Supplementary Spiral Spring Company, St. Louis, and has been very successful in its use.

Buffalo Specialty Company—The Thomas shock absorber is made by this Buffalo, N. Y., firm. These consist of a spiral spring, which is attached to the frame directly and above the axle. The connection to the latter is by means of a strap. The latter gives somewhat, while the spring yields considerably.

H. & F. Mesinger Company—Just like the Thomas, the Mesinger spring rebound check, made by H. & F. Mesinger Manufacturing Company, New York City, is composed of a combination of coil springs and leather straps. In this case, however, the construction is very simple, two coil springs being attached to each side of the frame in front of and behind the axle in the manner as shown.

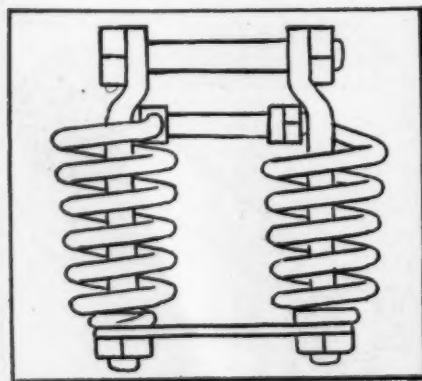


Fig. 8—Supplementary spiral spring

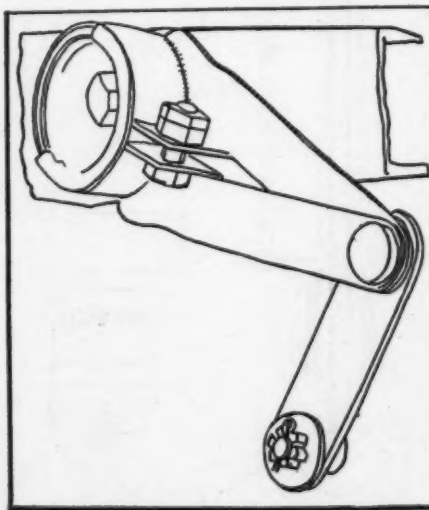


Fig. 4—Foster's shock absorber

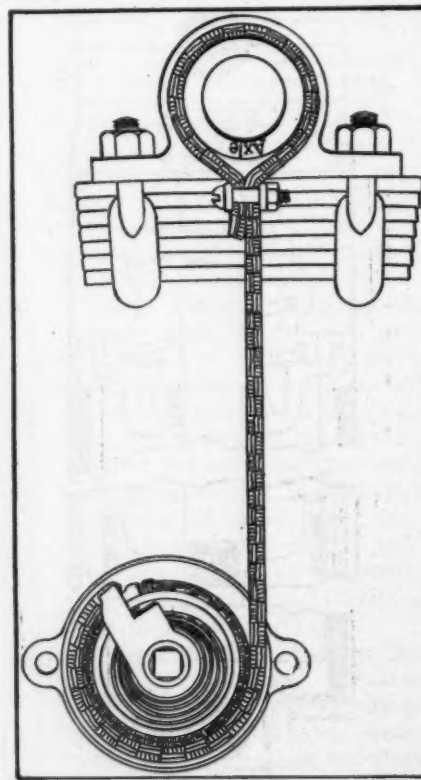


Fig. 6—F. R. V. uses spring and chain

SIGNALLING METHODS DEFINITELY CARED FOR

SAFETY is the keynote of all signalling devices, whether it be the selfish motive of personal safety or the more impersonal one of decreasing the dangers for the other fellow, the luckless one, who perforce must walk. Over and beyond the question of safety, although considered later on, is the matter of convenience.

This is made apparent by considering the case of a country road with a team occupying the center of the good going, and the driver of the same wholly unconscious of the automobile behind. Again, in city streets, when in a hurry one is often blocked off by a heavy, slow moving horse truck. In either of these cases, as well as in numberless others which might be mentioned, a polite request to move aside, as expressed by a proper signal on the horn, will usually give the much-desired result immediately.

More than this, the matter of passing another rig is attended with considerable danger to both parties, unless both are aware of and recognize the fact, making due allowance for the same. This sounds like a small item, but the danger is not only to the occupants of the two vehicles, but there is much danger of the vehicles being smashed up. The latter spells big expense for the motorist and comparatively large monetary outlay for the horse-drawn vehicle owner, as well as the inconvenience and delay in the latter case. Thus a farmer cannot borrow teams as he wishes during the busy season on the farm, and, in a case of this sort, the crops might rot or at least spoil, so as to be useless, while the farmer was endeavoring to secure another vehicle. So, the motorist should be thoughtful of others, and not only possess a good signaling device, but use it very freely as well.

In this connection, the automobilist would do well to bear in mind that when he has sounded a signal he in part frees himself from legal responsibilities, while in the absence of the same, the law will very likely be construed against him, to his financial detriment, and otherwise to his inconvenience.

There was a time when the hand-operated signal was universal, but with progress in other parts of the automobile has come also many improved methods of signalling, a number of them providing a signal which is not only produced easier and with less physical effort, but is of far superior value as a signal on account of its far-reaching qualities.

The public as a whole has taken kindly to the latter, and to such an extent that it might be said without disparaging the manually operated horn that the other

types are increasing in numbers to such an extent as to become the majority instead of the minority, as before.

Generally speaking, the whole field of signalling devices may be divided into three large, principal classes, under one of which heads all may be classified. These are the electrically operated signal, the exhaust or air operated device.

Within one of these three classes, nearly every known automobile signaling system may be classed, for there are very few, if any, cases in which the device comes under a different head, while the devices which come under two of these heads are also like hen's teeth, few and far between. It is hardly possible to say how many horns are in use of any one of the three classes, although at one time the manually operated signal was in the lead, and probably had close to a monopoly. The other two forms, the exhaust, or air operated, and the electrical signal have both cut into the field of the hand horn to such an extent, however, that it is impossible to say with truth that the latter is now mostly used. Between the two newest forms, it is also difficult to say which is the more popular, despite the differing prices of the two. Thus, the lower priced of the two is the exhaust horn, while the other appeals to the class of buyers which has little consideration for the expense. Electricity in all of its branches is a mystery to many people and instead of investigating and learning the truth of its simplicity, they avoid it, the result being that the unwarranted prejudice against things electrical has held back and unjustly, too, the electrically operated horn.

Lovell-McConnell Manufacturing Company—Probably the derivation of the name of this horn, the Klaxon, will explain clearly the sound which it produces. The word Klaxon was made up from the Greek word "Klaxo," meaning to cause a roar or shriek, and that is exactly the result obtained. This is done by the very rapid vibration of a specially prepared steel disc.

The extra rapid vibration is brought about by the impingement of a ten-toothed wheel against a button-shaped shoulder in the center of the disc, the wheel being rotated by a small and very compact electric motor. The latter is driven by either dry cells or a storage battery, and its speed is increased so that the three thousand revolutions per minute of the motor become thirty thousand per minute vibrations at the disc. Being operated by the simple act of pressing a conveniently located button, its use is a great convenience, as

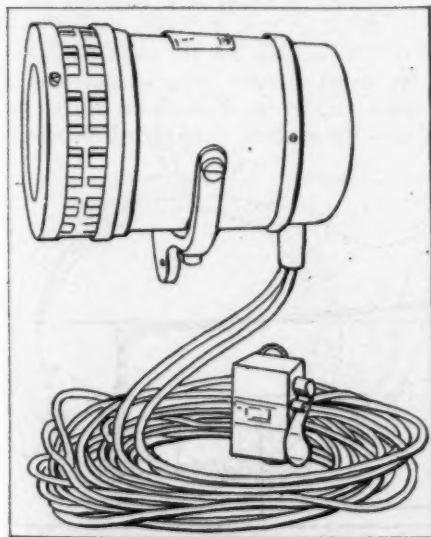


Fig. 2—Klaxon hand-operated siren

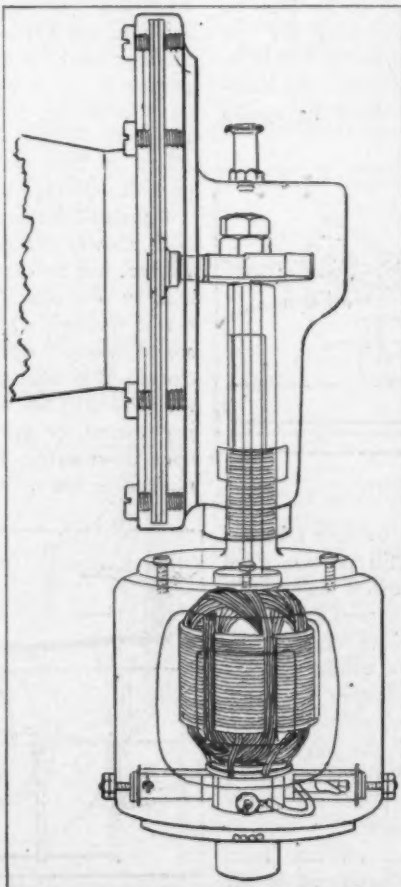


Fig. 1—Klaxon electrical horn complete

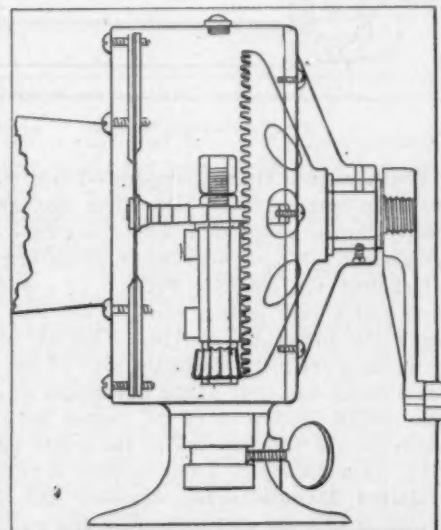


Fig. 3—Sireno turbine horn and switch

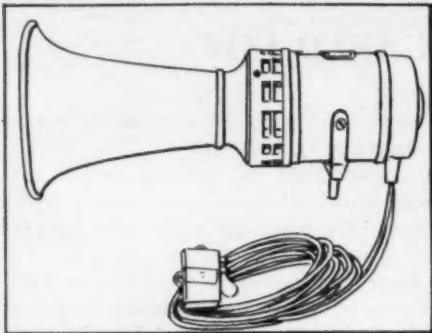


Fig. 4—Sireno Junior horn

this may be done without diverting attention from the road ahead. Safety is thus doubly assured and the idea good.

Sireno Company—This, too, comes in the first class, the electrically operated one, as it is a producer of sound through the medium of a cast-aluminum turbine, which is clamped to the shaft of a small electric motor. The turbine itself revolves, and this revolution causes the noise. To reduce wear and friction to a minimum, the armature is mounted upon a pair of ball bearings. A magnetic brake is added to stop the rotation, and with it the sound. These horns are made in several sizes, two of them being shown in Figs. 3 and 4. The former shows the large turbine horn, while the latter is a smaller size known as the Junior.

Holtzer-Cabot Electric Company—This Boston firm shows a direct-current electric horn differing from the others. As Fig. 5 indicates, it has a very neat, distinctive appearance, being compact, waterproof, and, what is more desirable than either, reliable. It may be wound specially for the work to be done on any pressure up to 123 volts, which may be sustained for five hours without injury. A superior interior construction has eliminated sparking at the contacts, even at high voltages. Its adoption by the United States Navy for emergency signalling speaks as highly of it as is possible to do.

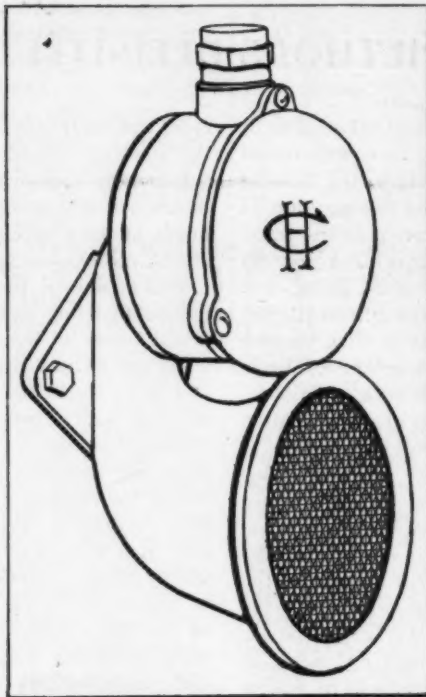


Fig. 5—Holtzer-Cabot electric horn

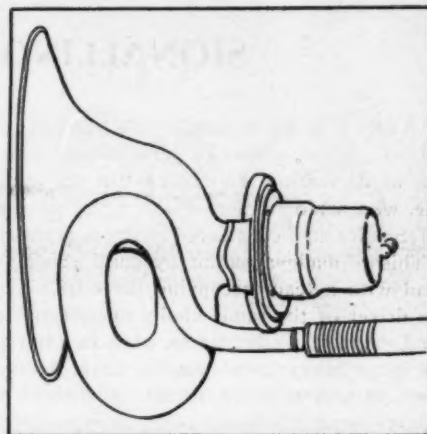


Fig. 6—Jones electric horn

electro-magnetic means. As with each of the other electric horns, the current from dry cells or storage batteries is equally applicable. Many types are made, varying from the one shown in Fig. 6 in size, style and weight. The usual form has a 12-inch bell, a close-coupled body, and is operated by a push-button placed on the steering wheel.

Gabriel Horn Manufacturing Company—Better than ever describes the 1910 Gabriel horns. These are made in the same styles as before, with the addition of a number of new types. Among the latter may be specially mentioned as accorded first place at the show is the new Gabriel trumpet, illustrated in Fig. 7. This consists of four single tubes, with a small valve at the end of each tube, each valve controlling its own tube. The four keys shown operate the four tubes. This allows of the use of any single note, or by the combination of the four, any combination of trumpet and bugle calls is possible. In addition, the keyboard is fitted with a small lever which operates all four valves at once, thus producing a single note for signalling purposes. As is well known, these horns are operated by the exhaust pressure, or if the car be equipped with an air compressor this may be utilized, the action being the same, whatever the source of fluid pressure. This pressure is applied for signaling purposes through the medium of the keyboard.

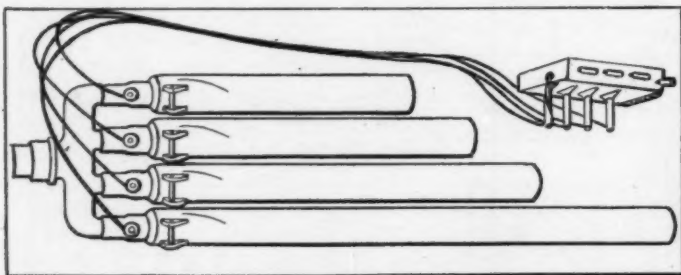


Fig. 7—Gabriel Trumpet four-tube horn

Electric Auto Horn Company—Since many owners adopted the hand-operated horn some time ago, and still possess good usable horns, which they would not care to throw away, this attachment will fill in very nicely, permitting as it does an electric attachment for old-style horns. This attachment operates by means of a push button, a set of dry cells or a storage battery being the source of current. The rotating member is wired up so as to set just back of the reed of the horn, so that the finished device has some of the advantages of both, the convenience and ease of application of the electric horn and the economy of using the old horn, as well as the softer sound produced by the reed. In addition, the whole outfit is not expensive.

United Manufacturers, Inc.—In the Jones electric horn shown at both shows by this firm, the sound is produced by the rapid vibrations of the diaphragm, which is set into motion by

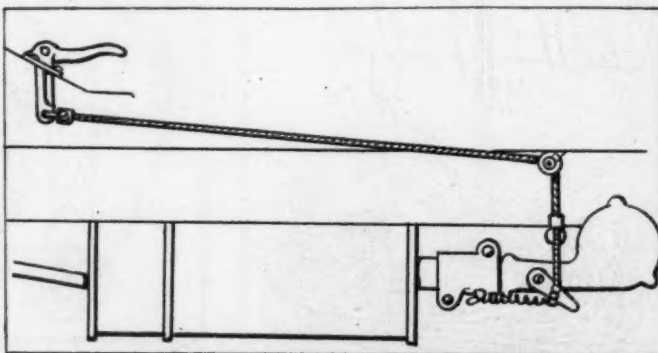


Fig. 8—Jericho horn and scheme of operation

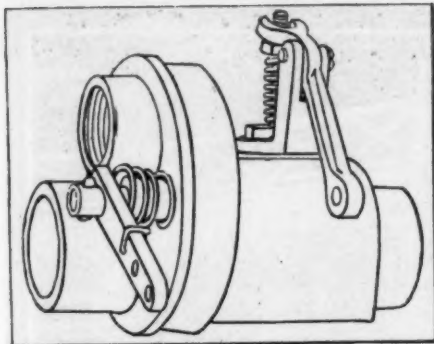


Fig. 9—Gray-Hawley Autochime Valve

with which it is used.

Nightingale Whistle Manufacturing Company—

This, too, is an exhaust operated horn, being of French extraction, which the importers have, however, improved upon greatly without changing the fundamental principle. In the changing process the idea has been to make it and its at-

tachment to a car as simple as possible, so that any mechanic, or even a private owner, could attach it without trouble. In this they have succeeded admirably. It is held on by means of clamps, which are designed to fit any exhaust pipe. In addition, the company is showing a new motorcycle signal along somewhat similar lines of construction.

Not the least attractive article the Nightingale Whistle Manufacturing Company is handling is the air compressor outfit for garage purposes. This consists of the very efficient little water-jacketed air pump, known as the Delpeuch air compressor, of metal throughout, with no leather packing or washers, which this company has been marketing for the past two years, the new feature being that they are furnishing a complete outfit for filling tires, including a guaranteed air-tight tank, safety valve, globe valves, and all necessary fittings, at the usually responsible prices consistent with the known policy of the company. The material and workmanship employed in the production of these outfits are of the highest grade obtainable, and no effort or expense has been saved to secure the greatest degree of efficiency; every part of the outfit is guaranteed. The compressor is already well and favorably known to garages throughout the Eastern states, and is being used not only for filling tires but cleaning engines, upholstery, etc.; it is the greatest labor-saving device garages can secure.

Gray-Hawley Mfg. Co.—Known to the trade as the Autochime, this exhaust horn has a number of individual features of sterling worth. This consists of a cylindrical body portion, containing the sound openings, and a valve for operating, which possesses a number of features of its own. Among these may be mentioned simplicity, durability, self-cleaning properties, accessibility, etc. It gives excellent control over the horn, which may be blown at any time, regardless of the speed of the engine. It is made in sizes to fit all exhaust pipes from 1 in. up to 2 in. The body of the Autochime proper is made of the best grade of selected brass, and is about 2 in. in diameter by 15 in. long.

Tsar Auto Horn—Another exhaust horn which possesses

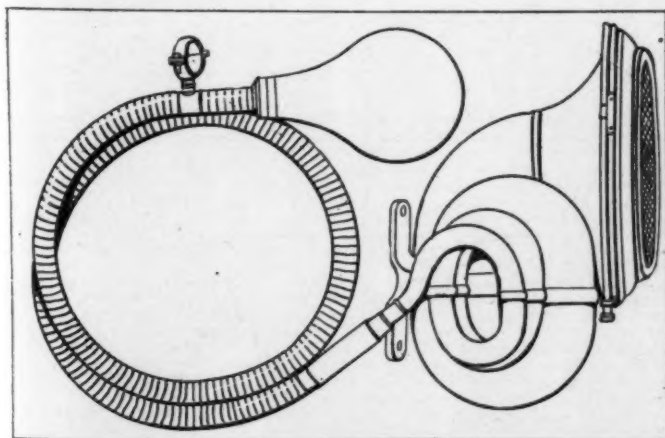


Fig. 12—Riley-Klotz Triple Twist horn complete

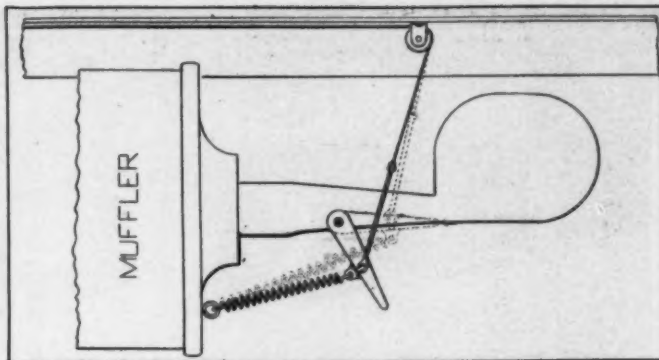


Fig. 10—Tsar exhaust-operated horn

the unusual feature of being quickly and easily attached to any car. This is attached to the exhaust end of the muffler, and requires no cut-out, although it may be used in connection with one, just as well as in cases where the cut-out is dispensed with. The makers state that it may be attached by any ordinary mechanic in less than two hours, with very few and simple tools. When in place it requires no attention, not even cleaning, as it does that little act itself. Being essentially simple, there is nothing to dislodge or get out of order. Fig. 10 gives an idea of the appearance, as well as showing the method of operation.

Charles E. Miller—This dealer is showing, among other things, the Testophone horn, Fig. 11. It has four tubes of varying lengths, which are worked by means of a single bulb. This result is something out of the ordinary, being produced through a special apparatus by successive compressions of the one bulb. The sound is a series of notes, which somewhat resembles a bugle call. Or, by the continued use of any one, a single prolonged trembling note of gradually increasing force may be produced. On the other hand, a single note is obtained by turning the cylinder when the piston is at the end of its travel. The whole horn is prevented from working by means of this same cylinder, which is turned when the piston is at rest.

Automobile Supply Mfg. Co.—In the Nonpareil hand-operated brass horn this Brooklyn supply house has an excellent exhibit. The finish and workmanship follow along French lines, the foreigners having been the best horn makers for some time.

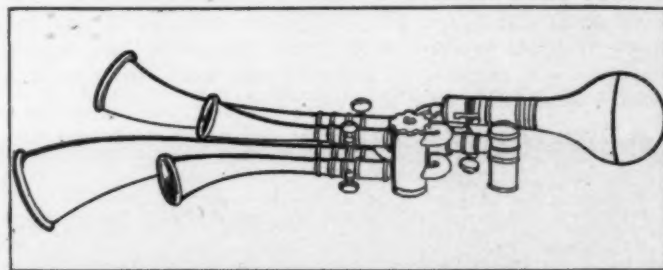


Fig. 11—Testophone horn has four tubes

A bulb of chemically cured rubber of large size secures instant and continuous operation, while the tone produced is best described as long-drawn-out, deep and penetrating.

Post & Lester Company—1910 models of the Volier horns are exhibited by this supply concern from Hartford, Conn. They are in two main styles, medium diameter oval and large diameter oval, both being of the hand-operated type. The bulb is of chemically cured rubber, the material of the horn heavy sheet brass, while the reed is of non-corrosive vibratory metal, which will give a maximum of service with a minimum of trouble.

Riley-Klotz Mfg. Co.—The triple twist horn, known by the prosaic name of No. 27, is shown in several styles. This is a manually operated horn with an oval bell, screen across the mouth of the bell, and fitted with a 50-inch tube, which is long enough for any purpose. The finish, material and workmanship are excellent throughout.



A Corner of the South Gallery Where the Display of Accessory Makers Was Imposing and Characteristic

NOTABLES GATHERED IN EXTRA FORCE

GLANCING over the list of names of the princes of the automobile fraternity who attended the gathering at the Garden proves to be of more than a little interest, partly due to the assembling in unusual force, then in view of the quality of the representation. In many cases, besides the heads of companies, there were numbered among the attendance the whole administrative force, which was augmented somewhat by a goodly scattering of executive "staff" men.

The accessory division added to the tide of official attendance, and this year the accessory field is not only strongly presented, but it has assumed such important proportions that none seems able to tell what will be the end. To be sure, the many additions to the "Selden flock" had to do with the attendance, and, perhaps, the gathering was forced by those who wanted to ascertain what the future portrays.

F. E. Powers, president and general manager of the Gilbert Mfg. Co., of New Haven, Conn., also E. B. Spaulding, treasurer, and W. A. Rutz, sales manager of the same company, are all stopping at the Woodstock Hotel.

The Astor Hotel is the home of Frank Coes, president and general manager of the Coes Wrench Co., of Worcester, Mass., also of Edward Searle and Harry Streme, salesmen.

The Randall-Falchney Company, of Boston, Mass., is represented by W. A. Randall, president; H. L. Hillman, sales manager; E. P. Wallian, the New York representative, and E. R. Brackett and S. A. Campbell, who are all stopping at the Waldorf-Astoria.

Among those registered at the Hotel Manhattan are Brice S. Evans, the Boston sales manager of the Kilgore Mfg. Co., also J. L. Allen, W. Nielson and H. C. Michelsen, the New York representative of the same company.

Hopewell Bros., of Newton, Mass., is represented by Frank B. Hopewell, C. A. Russell and Charles F. Hillers. These gentlemen are staying at the Waldorf-Astoria.

Among the representatives of L. C. Chase & Co., of Boston, Mass., are William Walden and R. L. Gilman, who are registered at the Prince George Hotel.

Irving H. Atwood, general manager of the Atwood-Castle Company, and Fred L. Castle, vice-president of the same concern, are staying at the Hotel Astor.

The New Departure Manufacturing Company, of Bristol, Conn., is represented by A. F. Rockwell, president and general manager; De Witt Page, secretary and sales manager; C. J. Tredwell, treasurer; M. J. Horton, D. W. Graham, W. R. MacGuyer, and J. N. Biddle, who are all staying at the Hotel Belmont.

Ernest Flentje, of the Flentje Shock Absorbers Company, of Cambridge, Mass., also E. Y. Stimpson, N. Y. representative; Charles E. Miller, draftsman; J. A. Sawyer, general manager; N. H. Wishart, Pittsburg representative; H. Hess and B. Parry, all of the same company, are stopping at the Hotel Empire.

The Hoffeecker Company, of Boston, Mass., is represented by F. D. Bennett, general manager and E. M. Rollins, sales manager, both of whom are registered at the Belmont.

The Post & Lester Co., of Hartford, is represented by H. W. Lester, treasurer and general manager; C. B. Lamb, secretary; G. R. Hall, Western representative; E. L. Thompson, manager of the

Boston branch; T. A. Cotter, manager of the New Haven branch, and T. M. Tarbell, manager of the Springfield branch.

Among those representing the Heinze Electric Company, of Lowell, Mass., are J. O. Heinze, general manager; P. J. Legare, sales manager, and Lionel Loupret and J. A. Malone, advertising managers, who are all stopping at the Hotel Belmont.

The Pittsfield Spark Coil Company, of Dalton, Mass., is represented by W. P. Wood, general manager; Thomas Wetzell, sales manager; K. Franklin Peterson, H. V. Greenwood, L. D. Bolton and W. J. Connell. These gentlemen are all stopping at the New Amsterdam Hotel.

Among those representing the Dover Stamping & Mfg. Co., of Cambridge, Mass., are H. E. Whitney, president, and H. M. W. Brigham. These gentlemen are stopping at the Hotel Woodstock.

During show week the Waldorf-Astoria is the home of William Gray, general manager of the firm of Gray & Davis, Amesbury, Mass.; also of Lambert Hollender, Alex Churchward, C. H. Munson, D. H. Elkins, Ed. Taylor and W. H. Gray, of the same company.

Witherbee Igniter Company, of Springfield, Mass., is represented by Phelps Brown, vice-president and treasurer; Theo. Getz, salesman; C. D. Galloway, salesman, and Mark W. Heath, Chicago branch manager.

The Allen Tire Case Company, of New York, is represented at the shows by William A. Allen.

Martin V. Kelley, of the MacManus-Kelley Company, of Toledo, is attending the show in the interests of his several clients. He is also making a trip to the Hartford Rubber Works, whose business he handles.

A. A. Atwood, Overland distributor in northwestern Ohio, registered in Monday.

Whitlock Coil Pipe Company, of Hartford, Conn., is represented by James L. Goodwin, general manager and treasurer; Richard Thompson and W. E. Kinney.

Couch & Seeley Company, of Boston, Mass., is represented by R. L. Whitman, treasurer; F. J. Boedeaux, sales manager, and L. A. Casgrain. These gentlemen are staying at the Belmont Hotel.

William Johnson, the well-known Denver dealer, is registered at the Cumberland.

Edgar Apperson, of the Apperson Bros. Automobile Company, and George Strout, sales manager of that company, are stopping at the Cadillac.

Among those registered at the Woodstock are N. H. Van Sicklen, president of the Automobile Blue Book Publishing Company; David Beecroft and N. H. Van Sicklen, Jr., of "Motor Age," Chicago.

J. McGill, of the Consolidated Supply Company, of Denver, is registered at the Cumberland. John E. Fry, of the same company, is also in town.

Fred C. Roble, of the Excelsior Supply Company, of Chicago, and Chester C. Boynton, of the same concern, are at the Astor.

Carl Metzger, of the Woods Electric Vehicle Company, of Chicago, is registered at the Astor.

The Keystone Lubricating Company, of Philadelphia, is represented at the show by A. C. Buzby, president; H. A. Buzby, secretary and sales manager; C. A. Hopper, T. W. Armstrong, H. L. Carpenter, W. F. Bettler and E. C. Huhn. These gentlemen are all stopping at the Hotel Breslin.

The Knickerbocker has among its guests this week F. A. B. Smith, vice-president of C. P. Kimball & Company, Chicago, and Stuart B. Andrews, of the same company.

Charles E. Firestone, secretary of the Columbus Buggy Company, of Columbus, Ohio, is at the Collingswood.

General Manager Otis R. Cook, Federal Rubber Company, Milwaukee, is registered at the Belmont.

G. S. Chapin, of the Motor Car Supply Company, Chicago, is at the Astor.

Bertram Smith, manager of the battery department of the United States Light & Heating Company, of Chicago, is at the Seville.

The Empire Hotel has among its guests C. E. Brelsford, of Detroit. The New Grand Hotel is the home during the shows of B. F. Meixell, president of the Indiana Motor Sales Company, of Indianapolis, and A. C. Downing, general manager of the Meixell-Downing Company, of Indianapolis.

C. J. Smith and A. R. Burr, of C. J. Smith & Co., of St. Paul, Minnesota, are registered at the Breslin.

Among the members of the trade who are stopping at the Astor are L. P. Zinke, J. W. Fulton, P. L. Hussey and Fred McManus, of the F. Z. H. Parts Co., of Chicago.

John J. McCutcheon, "the big fellow," Western manager for C. F. Splittorf, is registered at the Astor, as is also Harry E. Fields, of the Hartford Rubber Works.

William Schebler, of Wheeler and Schebler, of Indianapolis, is registered at the Waldorf-Astoria.

J. B. Long, president of the Long Mfg. Co., of Chicago, is registered at the Waldorf-Astoria.

J. A. Boyle, general manager of the Briscoe Mfg. Co., of Detroit, is stopping at the Belmont.

S. F. Briggs and H. M. Stratton, of the Briggs & Stratton Company, Milwaukee, were among the visitors at the show on Monday. Fred S. Duesenberg, the superintendent of the Maytag-Mason Motor Car Company, of Waterloo, Iowa, is in town for both shows.

W. L. Easterly, Indianapolis representative of the Firestone Tire & Rubber Company, is at the Murray Hill Hotel.

K. Franklin Peterson, of Chicago, and L. D. Bolton, of Detroit, are at the Belmont.

P. S. Steenstrup, general sales manager of the Hyatt Roller & Bearing Company, is stopping at the Belmont.

Among those registered at the Latham Hotel is H. W. Gray, manager of the Neustadt Auto & Supply Company, of St. Louis.

The Cumberland Hotel has among its guests C. E. Lipman, president of the Lipman Mfg. Co., of Beloit, Wis., and George Wahlgreen, of Denver, Col.

Among those registered at the Manhattan Hotel are F. E. Eckhart and J. I. Farley, of the Auburn Automobile Company, of Auburn, Ind.

President C. B. Hayes, of the Hayes Wheel Company, of Jackson, Mich., is registered at the Webster Hotel.

H. B. Krenning, president, and G. P. Dorris, vice-president Dorris Motor Car Company, St. Louis, who are here for both shows, are registered at the Knickerbocker.

Seamless Rubber Company, of New Haven, Conn., is represented at the show by W. Williams.

Whitney Manufacturing Company, of Hartford, Conn., is represented by Clarence Whitney, general manager.

Among those who are in attendance at the show in the interest of the White & Bagley Company, of Worcester, Mass., are H. P. Bagley, general manager; A. F. Kelley and A. G. Guy, who are stopping at the Imperial Hotel.

The A. W. Harris Oil Company, of Providence, R. I., is represented by A. W. Harris, president and general manager; B. S. Terry, W. T. Kincaid, George F. Haywood, Howard L. Gaunt, E. V. Harris and W. L. Larash.

C. T. McCue and L. D. Parker are representing the McCue Company, of Hartford, Conn.

The Novelty Mfg. Co., of Waterbury, Conn., is represented by Oscar Fitzsimmons, secretary; F. L. Cowles and E. W. Kingsley.

L. J. Mutt Company, of Boston, Mass., is represented by L. J. Mutt, W. J. Hoynes, Edward Patrick Murray, Henry B. Harris, Peter Welln and J. Eugene Rogers, who are staying at the Holland.

Fred A. Ballou, Buffalo representative for the Palmer & Singer and Selden cars, is registered at the Hotel Imperial.

C. Cowles & Co., New Haven, Conn., is represented at the show by L. C. Cowles, president; F. M. Ruwet, M. S. Bottume, Harry Bradley, stopping at Prince George Hotel.

The Springfield Metal Body Company, Springfield, Mass., is represented by Hindsdale Smith, president; A. P. Smith, treasurer; W. T. Helfer, sales manager; J. B. Richards, superintendent, and H. L. Rich, who are stopping at Hermitage Hotel.

Baldwin Chain & Mfg. Co., Worcester, Mass., is represented by W. H. Gates, treasurer and general manager; M. V. Greenwood and M. A. Bryte, stopping at Belmont Hotel.



Another Section of the Accessories Exhibits

L. D. Parker is attending the shows in the interests of Parker Motor Company, Hartford, Conn.

A. L. Dixon, general manager Brunner Motor Car Company, Buffalo, is at the Breslin.

E. W. McGookin, Detroit, is at the Astor.

Roger B. McMullen, Chicago, is at the Latham.

Ezra E. Kirk, Western sales manager Rainier Motor Company, of New York, is at the Manhattan.

F. H. Wheeler, of Wheeler & Schebler, Indianapolis, visited the Palace and Garden shows and left for Bermuda, Wednesday, by the "Bermudian," for a few weeks' stay.

W. S. McDonald, manager Detroit branch The Buda Company, of Chicago, is at the Astor.

James A. Holihan, sales manager Briscoe Mfg. Company, Detroit, is at the Belmont.

F. B. Sears joined his colleagues of the Auburn Automobile Company Tuesday, and is registered at the Manhattan.

Morris Eckhart, general manager, is ill at home and was unable to come East for the shows.

General Manager J. P. Elmer, sales manager Richard Bacon, Jr., Frank Nutt, engineer, and S. H. How, sales department Haynes Automobile Company, Kokomo, Ind., are registered at the Woodward.

C. C. Craig, manager Chicago branch, is at the Woodstock.

E. H. Webb, Detroit representative of the Royal Equipment Company, is at the Manhattan.

D. B. Smith, of The Standard Company, Torrington, Conn., is at the Breslin.



Typical Aisle in the Basement of Madison Square Garden, Where Many Accessories Were Exhibited

THE AUTOMOBILE

Vol. XXII

Thursday, January 13, 1910

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TORPEDO TYPES OF BODIES OPPORTUNE

Granting that body work has long ago departed from carriage makers' practices, even so, murmurings, from time to time, which seemed to be out of tune, rather lead to the conclusion that something was wrong, or, better yet, that body work, fell short of the requirement; a condition, to be sure, which could not have been foreseen. Experience has ever been the great teacher, and as this same influence ripened the judgment of autoists, it bestowed upon them the right to think—to think for themselves. That autoists do think is proven by the extent to which they are considered by the most advanced designers, and it is due to a desire to anticipate the needs of users of automobiles that so many changes were made all along the mechanical line, and body work is now coming in for its share of attention.

The presence of several determined examples of torpedo bodies, with differences in detail only, as between them, is but a reflection of the wants of purchasers; they preferring a fair measure of comfort, and, as experiences seems to have pointed out, a body which suffices for a carriage involving a speed of less than 20 miles per hour may be open at the sides without serious handicap.

For several years it has been the practice to protect occupants of the tonneau in every possible way, and a side door was found to be the most practical way of doing so. Why the driver, who has the lives of the occupants and the public in his keeping, should be left out in the cold, is a detail which will require a little explain-

ing, but owners, who drive, invariably complain of side-draughts when they come out from behind the breast-works. Contrast is an efficient illustrator.

Torpedo types of bodies alter the whole situation to a material extent; comfort is equally divided between the front and rear seats, and the power required to propel the automobiles so fitted is reduced materially below that which comes with unsymmetrical conformations. Torpedo bodies are probably destined to be with us long.

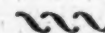


PRESSED STEEL AND FINALITY ON TERMS

Castings, like the man "Friday" in the story of Robinson Crusoe, befit a primitive situation. They were the most ready-to-hand, in the early days when shops devoted to the turning out pressed steel work were but few, and they, for the most part, were confined to car work as it applies to railroads or in the manufacture of guns.

When automobiles first came into vogue, they were built in small numbers, and the designs were on so unstable a footing that changes were in rapid succession. Under the circumstances it was as a simple process to whittle out patterns in wood, deliver them to a foundry, and have castings run off. The growth of the industry added stability in designs, and the expansion of plants devoted to pressed steel work are responsible for a change all along the line.

It is useless to go on saying that production in quantity leads to better quality unless reasons can be given, but, fortunately, the reasons are on the surface. They are exposed to the searching glare of a tropical noonday sun, and in this light, when the last word is said, it is the presence of pressed steel, in the absence of castings, which is at the bottom of the whole situation—a state of glowing health.



TIRES FALL HEIR TO SANE TREATMENT

Improved methods of tiremaking, while they are positive, and include better materials for fabrics as well as first selections of rubber, do not account for the better service which is undoubtedly being rendered by tires. It is in the manner of adapting tires that accounts for more than a little of the increased satisfaction; larger diameters are in evidence; greater sections prevail, and, what is equally important, tire pumps, with accurate gauges, are used in the inflating operation.

It is now a settled fact that inflating, unless it is most carefully done, will be at the bottom of rapid deterioration; moreover, it is necessary to have all four tires pumped up equally. Flexure is what ruins tires, and this phenomenon is decreased materially as the sizes of tires used are larger, and if they are inflated to a satisfactory point—which is possible when the tires are large enough for the car.

Again, demountable rims are in force, nearly every large firm showing a form of demountable. This furthers the modern tendency to cater to the ease and comfort of the non-professional driver, who usually is not as skillful with tools as his salaried brother. This form is the acme of simplicity, so that any one can make the change, practically without tools at that.

ANNUAL MEETING MOTOR AND ACCESSORY MFRS. (INC.)

NEW YORK CITY, Jan. 5—Waldorf-Astoria, as a hostelry, was filled to overflow by the members and guests of the Motor and Accessory Manufacturers (Inc.), who were there to attend the annual meeting and be banqueted. Over 200 members were seated at the festive board, which was after the business of the meeting was over. In addition to current matters the business meeting ended in the re-election of the old officers and the board, which now stands as follows:

President, H. E. Raymond (B. F. Goodrich Company), Akron, Ohio; first vice-president, H. T. Dunn (Fisk Rubber Company), Chicopee Falls, Mass.; second vice-president, F. E. Castle (Atwood-Castle Company), Detroit, Mich.; third vice-president, C. E. Whitney (Whitney Manufacturing Company), Hartford, Conn.; treasurer, W. S. Gortin (Standard Welding Company), Cleveland, Ohio; secretary, P. S. Steenstrup (Hyatt Roller Bearing Company), Newark, N. J.

In addition to this regular list of officials a new office was created, namely that of manager of the association, which position was filled by the appointment of W. M. Sweet, who has been acting manager for the past year and has been associated with the organization since its inception several years ago. Mr. Sweet is a young man of hustling disposition and there is not the question of doubt but that the organization under his direct control will prove a most useful one for the industry during the coming season.

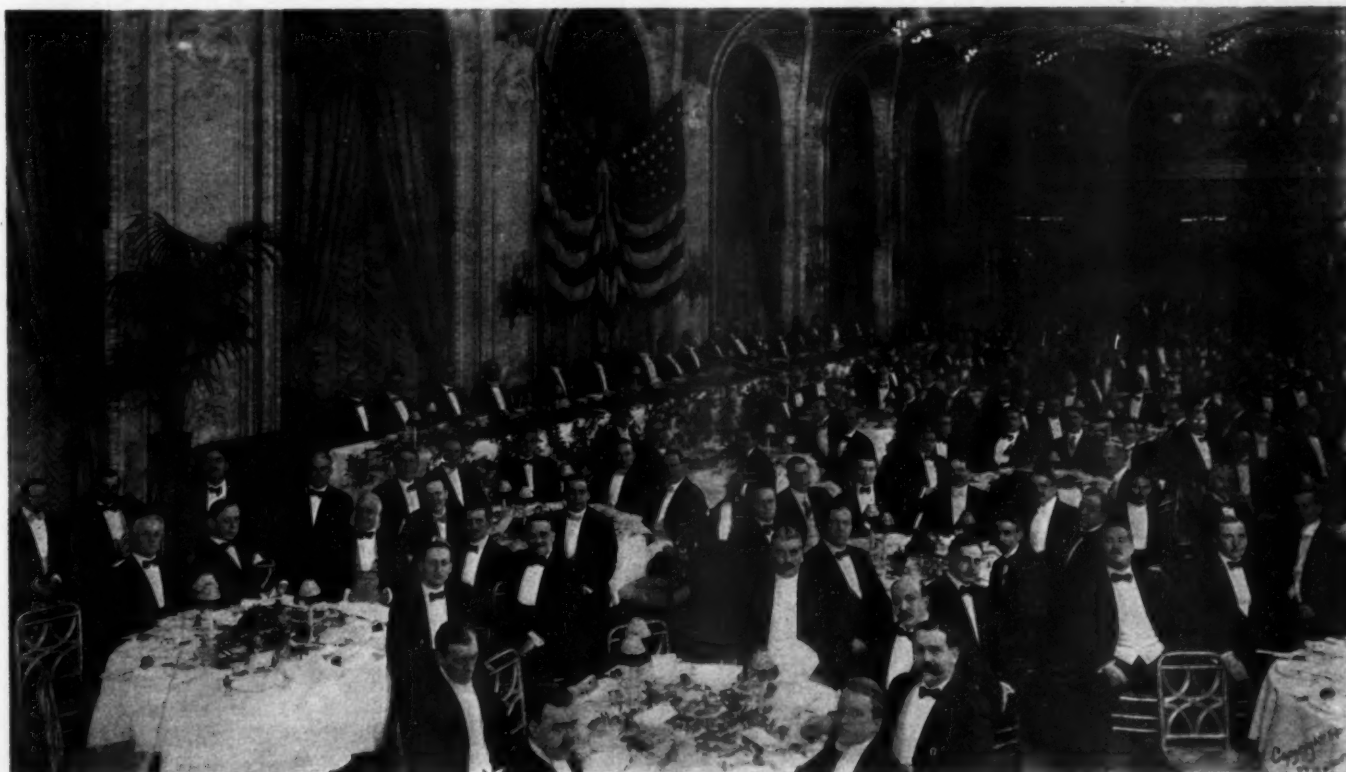
To-day the Motor and Accessory Manufacturers' Association is in a most promising condition, counting on its roster no less than 174 concerns, all of which are representative of the great accessory phase of the automobile industry. During the past year from thirty-five to forty new names have been added, one of which, the Auburn Auto Pump Company, Auburn, N. Y., was voted a member at the annual meeting. The present membership is, roughly speaking, 50 per cent. of the active accessory makers of the country, so that there yet remains big scope for the development of the organization. According to its present con-

stitution the organization holds an annual meeting at this season of the year and a semi-annual one in the summer, in addition to which there are the quarterly meetings of the board of directors. The valuation of the industries at present in the association aggregates the big total of \$307,000,000.

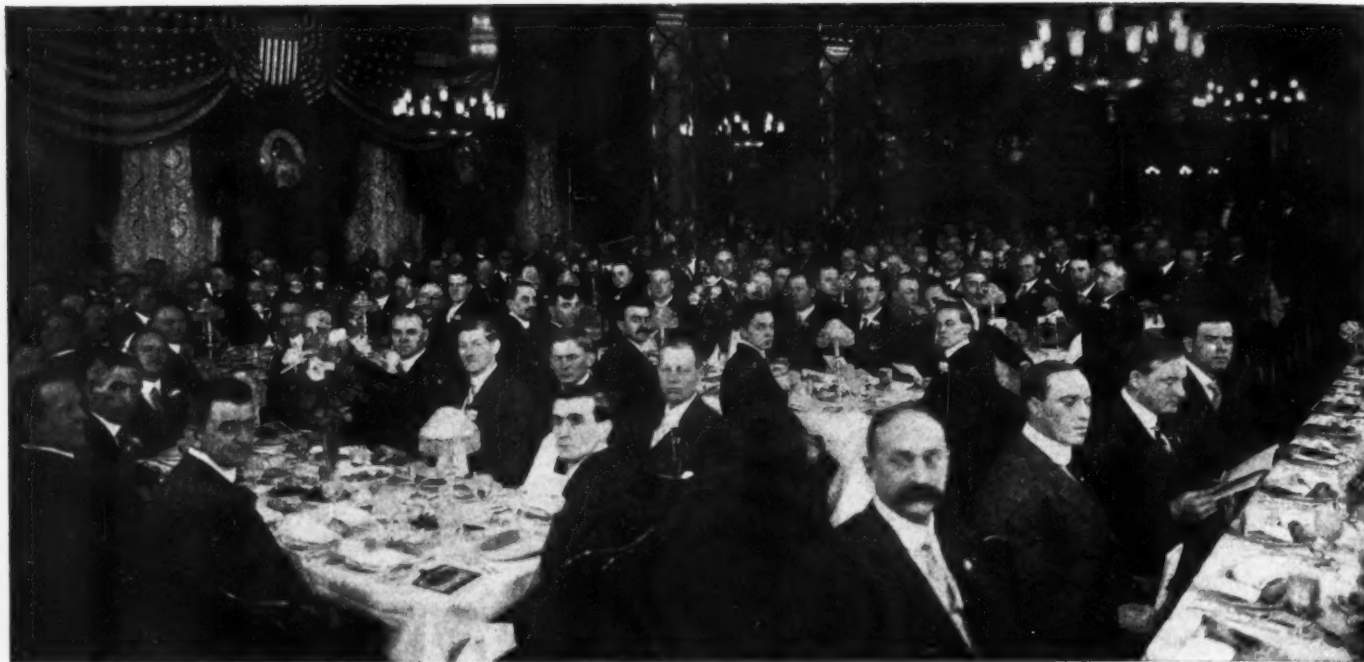
The annual banquet to a large extent took the place of the banquet which has been held every year up to the present by the American Motor Car Manufacturers Association, but which was dropped this season for the first time. The position of toastmaster developed upon Job E. Hedges, who has become familiar to the motoring fraternity by occupying similar positions during previous years, and throughout the evening his aphorisms were brimful of humor and common sense.

H. O. Smith, president of the A. M. C. M. A., the first speaker of the evening, dwelt on the present motor car situation and hoped that that same high order of business integrity would characterize every member of the accessory organization that has been conspicuous in the past. He looked for the time when gear-sets or other important car parts would not be sold to concerns who would yoke them up in too powerful cars, and hoped the time was not far distant when a commission might be appointed whose duty it would be to pass upon such conditions.

Col. George Pope, chairman of the A. L. A. M. show committee, was reminiscent of old bicycle days and wished the present accessory organization every possible prosperity. Other addresses were made by John C. Wetmore, the dean of the trade press in motordom; Lewis Speare, president American Automobile Association, and Hon. Martin Saxe. The last speaker dwelt in particular on the engineering operations that are being carried on to-day in the vicinities of New York and which are working great good to the cause of the automobile. He referred in particular to the proposed bridge across the Hudson which will give New York motorists an outlet to the great State of New York on the west side of the Hudson. The participants left with a renewed feeling of good-fellowship and mutual interest.



Banquet of the Motor and Accessories Manufacturers, Inc., at the Waldorf-Astoria, New York City, January 5, 1910



Annual Banquet of Maxwell-Briscoe Motor Company, to Its Selling Forces, Hotel Manhattan, New York City, January 6, 1910

MAXWELL-BRISCOE ANNUAL BANQUET

Each year the annual banquet tendered by the Maxwell-Briscoe Motor Company to its agents and other representatives becomes a more enjoyable feature of that progressive corporation. These banquets given at the time of the Palace Shows when the attendance can be the largest, and that of the present year took place at the Hotel Manhattan, New York City, on Thursday evening, January 6, under the auspices of the sales organization of the company, and catered to 275 covers. The menu card was elaborate and was replete with caricatures of the leading lights of the Maxwell-Briscoe organization, the outside cover depicting a radiator upon which was embellished in color a large piece of beef roasting over a hot "rotisserie" fire.



E. R. Thomas Accepting New York-Paris Trophy

This year the usual quota of speechmaking was abolished, Mr. Briscoe making the speech of welcome, and introducing a program of vaudeville which was good and appealed strongly to the sentiment of the assembled guests. The head of the table was occupied by Messrs. Benjamin Briscoe and J. D. Maxwell, who were flanked on either side by the leading lights of the company's sales organization.

THOMAS GETS "ROUND THE WORLD" CUP

At a banquet at which nearly 300 guests partook of the hospitality of the E. R. Thomas Motor Company, the New York to Paris Trophy, offered by *Le Matin* of Paris and the *New York Times*, was formally presented by the representatives of the donors, at the Automobile Club of America on Saturday evening, January 7. There was a large table circling the banquet hall in the shape of a horseshoe, and at the oval's end was placed a table at which were seated the guests of honor and the officials of the Thomas company.

Robert Lee Morrell officiated as toastmaster and at his right and left were seated George Schuster and George Miller who were in the winning Thomas car almost constantly from the time it started on its 20,000-mile journey at Times Square, New York City, until it stopped in front of the office of *Le Matin* in Paris, 26 days ahead of its nearest competitor. Ruining all the way round the horseshoe-shaped table was a series of photographic views which depicted the progress of the journey.

At the toastmaster's signal Messrs. Schuster and Miller, accompanied by E. R. Thomas, advanced to the center of the horseshoe where the trophy stood draped with the American flag, and simultaneously pulling two wires they released the flag which fell disclosing to the assembled guests the symbol of their victory. The orchestra played "The Star-Spangled Banner" and the guests cheered. Mr. Thomas made a well chosen speech of acceptance on behalf of his company, and Messrs. Schuster and Miller told of some of their experiences in Siberia.

The trophy is said to be the largest of its kind ever made, and stands six feet six inches in height, weighing slightly over 1,600 pounds. The materials used in its construction are all native to the four nations represented in the race—the United States, France, Germany and Italy. The pedestal is of green Italian marble, and the sub-base is of French marble of beautiful pink shade. The medallions are of German bronze, depicting the coats of arms of the four competing nations, and the German

bronze globe that surmounts the whole is covered in bas relief, showing the continents and the route of the great race in American silver. The whole is surmounted by a silver American eagle.

An elaborate menu was served and at its conclusion many addresses of congratulation were tendered the host. Among the speakers, in addition to those mentioned above, were Col. George Pope, chairman of the A. L. A. M. show committee; Alfred Reeves, general manager of the American Motor Car Manufacturers' Association; H. P. Burchall and W. J. Hanley, of the *New York Times*, John C. Wetmore, the dean of the New York automobile press men, and S. M. Butler, chairman of the Contest Board of the American Automobile Association.

NATIONAL GAS ASSOCIATION MEETING

CINCINNATI, Jan. 10—It has just been decided by the executive committee of the National Gas and Gasoline Engine Trades Association to hold the next annual meeting at the Sinton Hotel, Cincinnati, from June 13 to 16.

ADJOURNED MEETING OF THE S.A.E.

Agreeably to the resolutions which were made at the first half of the annual meeting of the Society of Automobile Engineers, which was held on the fourth instant, at the Automobile Club of America, the adjourned meeting, which will complete the dual session, will begin to-day at 10 o'clock A. M. in the Engineering Societies Building, New York City, and a banquet will terminate the doings of the society, at which the members and guests will be seated at 7 P. M. at the Engineers' Club, 32 West Fortieth street, New York City.

CANADA GOOD ROADS CONVENTION

TORONTO, ONT., Jan. 10—After a conference of a committee of the Ontario Motor League with a similar committee from the Ontario Good Roads Association held in Toronto last week, it was decided to hold a National Good Roads Convention in Toronto during the automobile show, which occurs February 24 to March 3. This show will be the largest ever held in Canada.

OVERLAND COMPANY GIVES LUNCHEON TO PRESS

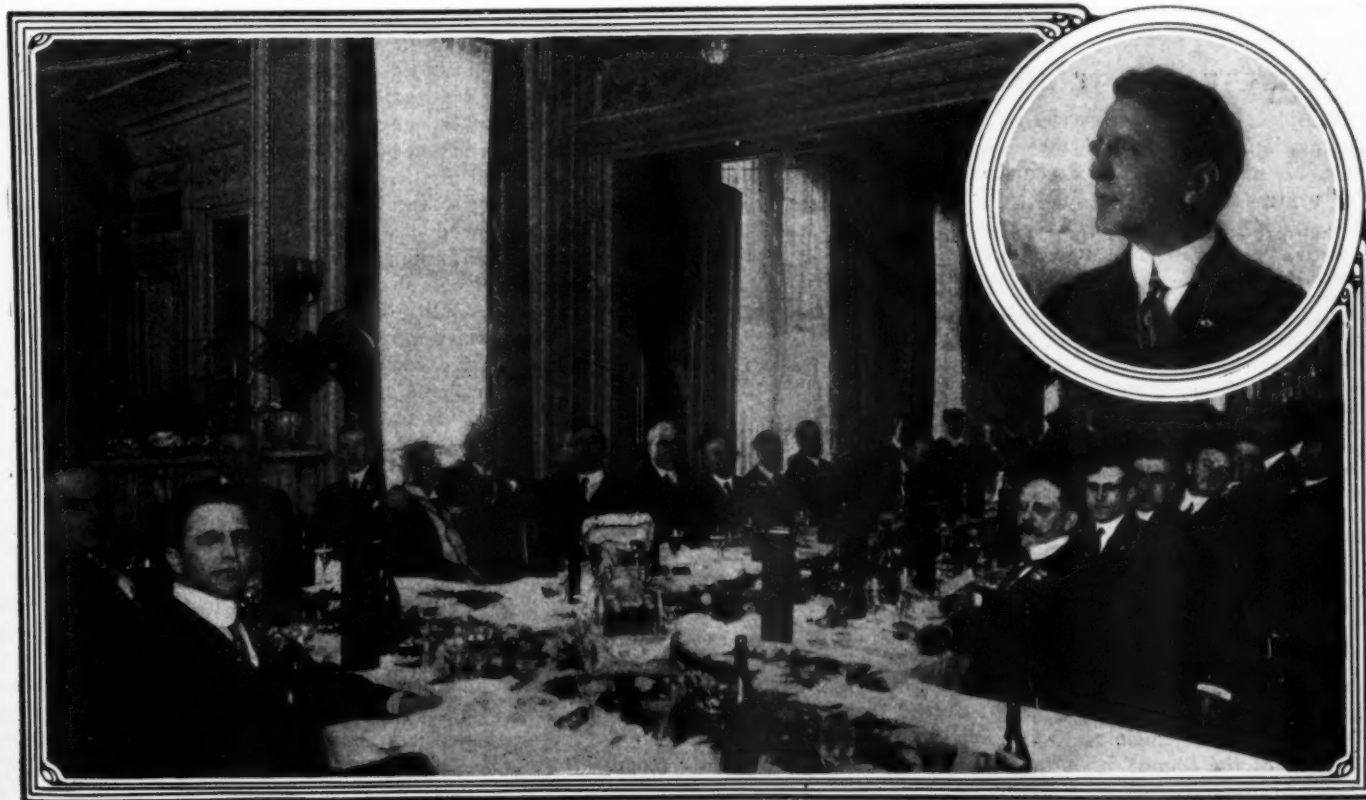
VERY enjoyable describes the luncheon tendered the "Fourth Estate" by F. A. Barker, of the Overland Automobile Company, introducing John N. Willys, president of the company. The lunch was served at one o'clock on Tuesday, January 11, at the Café Martin, New York City, with the usual good things and all the accessories. It was attended by about fifty representatives of the leading news and trade papers.

At the cigars and coffee, Mr. Barker placed the assembly in charge of A. G. Batchelder, who, in his happy and facetious manner, selected from the gathering the orators of the occasion. In presenting Mr. Willys, in whose honor the gathering was assembled, reference was made to the phenomenal development of the Indianapolis and Toledo properties under his leadership, but the future plans of the company were set forth in substantial and pointed oratory by Mr. Laskar, treasurer of the Lord and Thomas Advertising Agency, in whose hands the Overland company has placed its problem of publicity. His announcement that the ad-

vertising for the sale of 20,000 automobiles during 1910 was not to be obtained by free reading notices, was received with applause by an unusually appreciative audience. The advertising campaign will be opened by an expenditure in a single day of \$62,000, to be followed by approximately \$50,000 a month. It, therefore, followed that aside from an extensive and well-organized manufacturing proposition, the Overland people have organized one of the largest, if not the most elaborate, advertising propaganda in the history of the industry.

Mr. Wagner was then appointed timer, and the speeches following were limited to three minutes each. Complimentary indulgences were then offered by Messrs. Schwartzkopf of *Automobile Topics*, Major Humphreys of the *Post*, Ryan of the *Chicago Record-Herald*, Sullivan and Swetland of *THE AUTOMOBILE*.

The guests were presented with a handsome souvenir, consisting of a thermos bottle in a leather case filled with good intentions and best wishes for the New Year.



President J. N. Willys, and Banquet Tendered Press Representatives, by Overland Automobile Company, Café Martin, January 11

WORK FOR THE A.A.A. LEGISLATIVE BOARD

Widespread demand for uniformity in automobile legislation and the necessity for more satisfactory statutes has been apparent in all sections of the country for several years: The American Automobile Association, through its legislative board, early recognized the necessity for national automobile legislation, and what will be the biggest object lesson ever shown in America toward this end will be seen in Washington next month when the National Legislative Convention will be held in that city. The dates as fixed by the Legislative Board, of which Charles Thaddeus Terry is chairman, will be February 15, 16 and 17.

The American Automobile Association has been working to secure uniformity in automobile laws whereby touring from one State to another could be made possible without the necessity of securing additional registration and paying extra fees, and to a certain extent considerable success has been accomplished along these lines, mainly through the efforts to induce the various State Legislatures to enact uniform State laws. It has remained, however, for this National Legislative Convention to crystallize the efforts made in various sections of the country into a grand national demonstration to secure not only what autoists regard as their rights, but which will be a practical illustration of the growing sentiment for uniformity. As an indication of this increasing demand for uniformity it is important to note that Mr. Terry has been requested to speak before the National Civic Federation at its coming conference on uniform legislation, to be held in Washington January 17, 18 and 19, and he will outline the necessity for federal action.

Mr. Terry has recently announced the members of his Legislative Board for the coming year. Every State in the Union is represented. Among some of the well-known members who have always taken an active part in automobile legislation are T. E. Bryan, Florida; H. O. Smith and Edgar Apperson, Indiana; S. D. Waldon, R. D. Chapin, Michigan; F. T. Staples and C. H. Gillette, Connecticut; Frank C. Battey, Georgia; David Beecroft and Sidney S. Gorman, Illinois; Francis A. Hurtubis, Jr., Robert C. Cooley, J. P. Coghlin, Massachusetts; Frank M. Joyce and C. H. Kohler, Minnesota; Dr. W. B. Richardson, Bert Van Tuyle, H. A. Meldrum, Oliver A. Quayle, and Frank G. Webb, New York; Paul C. Wolff, Robert P. Hooper and Powell Evans, Pennsylvania; W. C. Crosby and H. A. Bonnell, New Jersey; James T. Drought, Wisconsin; C. Gordon Neff and F. T. Sholes, Ohio.

CONTEST AND TECHNICAL COMMITTEES

President Lewis R. Speare, of the American Automobile Association, has appointed the following active and associate members of the Contest Board and of the Technical Committee for 1910:

Chairman—S. M. Butler (previously appointed).

Active Members—David Beecroft, Chicago, Ill.; S. B. Stevens, Rome, N. Y.; T. A. Wright, Wilkes Barre, Pa.; Joseph K. Woods, Newark, N. J.

Associate Members—Frank G. Webb, Brooklyn, N. Y.; Frank B. Joyce, Minneapolis, Minn.; F. C. Donald, Chicago, Ill.; L. P. Lowe, San Francisco, Cal.; C. M. Gillette, Hartford, Conn.; Harry W. Knights, Boston, Mass.; James T. Drought, Milwaukee, Wis.; R. P. Hillman, Los Angeles, Cal.; P. D. Folwell, Philadelphia, Pa.; Ralph W. Smith, Denver, Colo.; Wm. G. Humphreys, Atlanta, Ga.; Harvey Granger, Savannah, Ga.; E. H. R. Green, Dallas, Tex.; Charles B. Shanks, Portland, Ore.; G. P. Bullard, Phoenix, Ariz.; Mason B. McLoughlin, Cleveland, O.; T. C. Campbell, New Orleans, La.; Henry J. Spuhler, Pittsburg, Pa.; Chas. W. Sedwick, Indianapolis, Ind.; Geo. Lane, Detroit, Mich.

Technical Committee—Alden L. McMurtry, Chairman, New York. David Beecroft, Chicago, Ill.; F. E. Edwards, Chicago, Ill.; Henry Souther, Hartford, Conn.; Alex. Churchward, Schenectady, N. Y.

Additional appointments on the Technical Committee will be made covering the Middle West, the Pacific Coast and the Southern territories. The object of further appointments will be to make this committee as representative of the different sections of the country as is the contest board.

MANUFACTURERS' CONTEST ASS'N MEETING

The annual meeting of the Manufacturers' Contest Association, Incorporated, was held Saturday, January 8, at the Hotel Manhattan, New York City. Officers elected were as follows: President, Benjamin Briscoe; vice-president, H. O. Smith; secretary-treasurer, William E. Metzger; assistant secretary-treasurer, Russell A. Field; chairman rules committee, H. E. Coffin; directors, Benjamin Briscoe, H. O. Smith, William E. Metzger, H. E. Coffin and Windsor White.

Reports of officers and committees show the organization to have made splendid progress in the first year of its efforts to regulate contest matters in a manner satisfactory to all concerned. The proposed classifications for 1910 were considered in detail and finally ratified. As soon as adopted by the contest board of the American Automobile Association they will be made public in printed form. Besides members of the organization, several others interested in competitions attended.

Interest in the work of the Contest Association is now evidenced from every corner of the world where motor contests are held. There are already several new applications for membership, and, as stated by the president at Saturday's meeting, "it is plain that every maker interested in contest matters will become identified with the organization," the New York office of which is in the Goodrich building, 1780 and 1782 Broadway.

Among those in attendance at the meeting were:

Members—George H. Strout, Apperson Brothers; Alanson P. Brush, Buick Motor Company; E. R. Hollander, Flat Automobile Company; H. E. Coffin and C. H. Taylor, Hudson Automobile Company; H. O. Farr, Knox Automobile Company; Benjamin Briscoe and C. W. Kelsey, Maxwell-Briscoe Motor Company; William E. Metzger, Metzger Motor Car Company; George M. Dickson, National Motor Vehicle Company; Howard Marmon, Nordyke & Marmon Company; J. B. Eccleston, Oakland Motor Car Company; J. W. Elmer Pratt, Pierce-Arrow Motor Car Company, and G. W. Weldely, Premier Motor Company.

Present by Invitation—S. M. Butler, Chairman American Automobile Association Contest Board; A. R. Pardington, Motor Cups Holding Company; E. A. Moross, Indianapolis Motor Speedway, and Frank Nutt, Haynes Automobile Company.

A.A.A. EXECUTIVE COMMITTEE MEETING

State automobile organizations of Texas and Alabama were added to the roll of the American Automobile Association at the meeting of the executive committee held Tuesday at the New York headquarters. This makes a total of thirty-three State bodies now included in the National association. At the same meeting the Automobile Club of St. Louis, with about 400 members, joined as an unfederated club; it will subsequently be included in the formation of a Missouri State association. Lewis R. Speare presided at the meeting.

The usual reports were made by the chairmen of boards. Thaddeus Terry, who has charge of legislation, indicated that the convention at Washington February 15, 16 and 17 will see important developments in the struggle for National legislation.

Chairman S. M. Butler of the contest board reported that the 1910 competition rules were practically ready for the consideration of the executive committee. The number of applications for sanctions far exceeds any previous list filed this early in the season, though this was to be expected in view of the request of the board that clubs desiring dates should let their wishes be known as soon as possible. Likewise Chairman Powell Evans of the touring board presented instructive facts and figures.

George B. Ellis, president of the Automobile Club of Southern California, and John N. Brooks of the Connecticut State Automobile Association were elected members of the executive committee, and the nominations of the following directors by their respective clubs were also approved: Dr. E. W. Omensetter, North Wildwood, N. J., Automobile Club; Hon. Walter E. Edge, Atlantic City, N. J., Automobile Club; J. J. Hinners, Edgewater-Fort Lee, N. J., Automobile Club; Edward C. Smith, Automobile Club of Vermont; William E. Goucher, Jamestown, N. Y., Automobile Club; J. B. McMurrich, Oswego, N. Y., Automobile Club.

TWO WEEKS OF SHOW FOR PHILADELPHIA

PHILADELPHIA, Jan. 10—Saturday night the ninth annual automobile show of the Philadelphia Automobile Trade Association will open in the Third Regiment Armory, at Broad and Wharton streets. The building is so small that in order to accommodate all the applicants for space an extension of the show for an additional week became absolutely necessary. The first week will be devoted to gasoline and steam pleasure cars only. There are a sufficient number of these exhibits to not only fill every available inch of space, but to necessitate some of the late applicants going over to the second week, when electrics, commercial cars, motorcycles, and accessories will hold forth. A special aero exhibit will be a feature of both weeks.

A large corps of workmen has been engaged since early last week transforming the bare interior of the Armory into a bower of beauty, of which blue and white will be the color scheme. When completed the impression of an outdoor exhibition of automobiles is the effect which the decorators will have produced. Box hedges, lattice-work walls intertwined with flowers and green burlap floorcovering combine to carry out the idea. The aisles will be marked by Corinthian columns topped with vines and ornamental plants. The gallery will be devoted to the use of the local automobile clubs for reception purposes, separate spaces being set apart for the Quaker City Motor Club, the Automobile Club of Philadelphia, the Automobile Club of Germantown and the Automobile Club of Delaware County.

All the exhibiting concerns are members of the Philadelphia Automobile Trade Association. A score or more of non-members have been compelled to take second-week spaces. These, with the

electrics, commercials, motorcycles, and accessories, will tax the capacity of the Armory for the last half of the show. The following exhibits will hold the stage during the first week:

Stoyle-Vogel Auto Company—American.
Bergdoll Motor Car Company—Bergdoll cars and taxicabs, Thomas and Mercer.
Chadwick Engineering Company—Chadwick.
Prescott Adamson—Columbia and Reo.
Gawthrop & Wister—Elmore.
Ford Motor Company—Ford.
Locomobile Company of America—Locomobile.
General Motor Car Company—Lozier.
Matheson Automobile Company—Matheson and Everitt "30."
Maxwell-Briscoe Company—Maxwell.
Standard Motor Car Company—Middleby and Velle.
Penn Motor Car Company—Mitchell.
Tioga Automobile Company—National and Hupmobile.
Olds-Oakland Company of Pennsylvania—Oldsmobile and Oakland.
Packard Motor Car Company of Philadelphia—Packard.
Auto Sales Corporation—Peerless and Cadillac.
W. J. Sprinkle—Marion and Overland.
Foss-Hughes Motor Car Company—Pierce-Arrow.
West-Stillman Motor Car Company—Pope-Hartford.
The Motor Company—Premier.
Longstreth Motor Car Company—Pullman and Alco.
Thomas M. Twining Company—Regal-Detroit.
Hills Motor Car Company—Royal Tourist.
D. Walter Harper—Stanley steamers.
G. Hilton Gantert—Stearns.
A. G. Spalding & Brother—Stevens-Duryea.
Stoddard-Dayton Auto Company of Philadelphia—Stoddard-Dayton.
Studebaker Brothers Company—Studebaker and Studebaker-Garford.
White Company—White steamer and gasoline cars.
Winton Motor Carriage Company—Winton.

SOME FACTS ABOUT PALACE SHOW

Now that the Palace show has closed, it is possible to present a number of interesting figures and facts in connection with it. All records for attendance, either of the public or of agents, were broken, as were the records for profit as well.

For the six days and seven nights, the total attendance was 104,660, to which total, Friday, the closing day, contributed the greatest amount, 19,000. Owing to the close proximity of the A. L. A. M. show, the latter half of the show was the most profitable, the last three days being equal to the others totaled.

That the dealers were out in force was shown by the large number of dealer's buttons given out by the management, 1,284. In addition to the great number from all over the United States, there were many from Canada, and six from Europe. The attendance of carriage dealers was 243.

Associated with the American Motor Car Manufacturers' Association in the conduct of the show and interested in the profits are the Importers' Automobile Salon and the Motor and Accessory Manufacturers.

At the Grand Central Palace on Saturday, Marcus Nathan, the secretary, said that the palace was built 22 years ago and during all that time it never had such a handsome exhibition, nor one so important in the industrial world, while the attendance exceeded anything on his records. The Palace will not be torn down for at least two years.

SYRACUSE SHOW AN ASSURED SUCCESS

SYRACUSE, N. Y., Jan. 8—Immediately after the close of the New York exhibits, the committee of the Syracuse Automobile Dealers' Association will meet to perfect arrangements for the Syracuse show, to be held March 14-19 in the New York State Armory. Chairman H. D. Van Brunt of the committee says no effort will be spared to make the Syracuse show second to none outside of New York. Double the amount of money spent last year in decorations will be paid out this year.

40,000 SQUARE FEET FOR BUFFALO

BUFFALO, N. Y., Jan. 10—All of the space for the Buffalo Automobile Show, to be held in the Broadway Arsenal February 14-19 under the auspices of the Buffalo Automobile Trade Association, has already been taken. The hall is 267 feet long and 167.1 feet wide, offering a floor area of 35,119 square feet. This is two and one-half times the floor area of Convention Hall where the former shows have been held, so that the forthcoming exhibition will be just that amount larger than any of its predecessors.

Members have been in New York during the past two weeks to visit the shows in Madison Square Garden and the Grand Central Palace for the purpose of obtaining suggestions in the line of decorative effects. A feature already adopted will be the drapery of the vaulted ceiling with the largest American flag ever made. It will form a canopy far above the exhibits, and will be illuminated by electric lamps. The illumination calls for 10,000 lamps. The show will be departmentized, including gasoline pleasure cars, electric vehicles, trucks and motorcycles.

The management is making arrangements also for the exhibition of an aeroplane with an actual record of flight, in the interest of and with the co-operation of the Aero Club of Buffalo.

ROCHESTER LOOKING FOR BIG TIME

ROCHESTER, N. Y., Jan. 10—Under the direction of the Rochester Automobile Dealers' Association and the management of Captain C. A. Simmons, who is well known in Rochester, the third annual automobile show will be opened on February 14, and run to and including February 19. An indication of the spirit in which the show is being received is the fact that the Mayor has consented to postpone a musical concert which was planned to be held in Convention Hall the day previous to the opening. This concert has been done away with in order to permit exhibitors to have all the time necessary to get the hall in complete shape so that when the doors are open on Monday night, February 14, there will be absolutely no reason why the show should

not be ready for the public. Monday night will probably witness a tremendously large audience.

Elaborate posters have been put out advertising the show and the preliminary application for spaces on the part of accessories dealers early gave evidence to the manager and the committee in charge that the show would far surpass last year's efforts. It is planned this year that the show in itself will be a big social event, or, rather a series of social events. A special effort will be made on featured nights. From the standpoint of the dealers, more store has been put in this year's show than ever before owing to the success which attended last year's exhibit. An electric display will be a feature.

For months the people of Rochester have been looking forward to this display. This feeling did more to make the manager and committee work hard in the early stages of the preparations to insure success of this year's affair than any other consideration. Features of the affair are to be two bands, one in each section of Convention Hall playing alternately, an elaborate floral display in addition to the musical programs, and electrical illumination.

MILWAUKEE SHOW WILL BE NOTABLE

MILWAUKEE, WIS., Jan. 10—The Milwaukee Automobile Club has begun to arrange the preliminary arrangements for the second annual show to be held in the Milwaukee Auditorium from February 22 to 27, inclusive, now that space has been sold out and the financial success of the event is assured. The demonstrating cars will be given the use of the Fifth street side of the Auditorium. All three entrances will be used to accommodate visitors. The Cedar street entrance will be used for those who attend in cars and carriages. The State street side is reserved for exhibitors. Electric arches will span Fifth street from Cedar street to Grand avenue.

On the evening of Washington's birthday the show will open and remain open until midnight of Sunday, February 27, in order to give the employes and experts of the various motor car manufacturers in Wisconsin an opportunity to see the exhibition.

The entire ground floor or arena of the main hall will be devoted to motor car exhibits; the basement to trucks, delivery and mail wagons, ambulances and other commercial vehicles; the smaller halls to motor boats, marine engines, sportsmen's goods, and accessories. All this has been accomplished in the face of great opposition on the part of the local dealers, a large number of whom have not only refused to exhibit, but have opposed the show.

LOUISVILLE SHOW TO ASTONISH SOUTH

LOUISVILLE, KY., Jan. 10—What will undoubtedly be one of the most pretentious and attractive automobile exhibitions held in this section of the country will be inaugurated in the Armory, said to be the largest building in the South, on March 17, 18 and 19. Applications for space to accommodate cars enough to make a creditable showing have been received and it is evident that the capacity of the Armory will be taxed. The show will be given under the auspices of the Louisville Automobile Dealers' Association and an elaborate plan of decoration will be carried out.

There will be several hundred different displays, which will include an extensive variety of the latest models. The value of machines on exhibition will range from the cheap vehicles to the most expensive cars. In one section of the big building a complete display of motorcycles will be exhibited, while the department of electric pleasure vehicles will be one of the features of the show. A considerable amount of space will also be given over to accessories.

At this show the Kentucky people will have the first opportunity to inspect the newest products of representative American makers. Committees have been appointed to take up the work of arranging for the various details of the show, which promises to be the most important event with the automobile manufacturing and trade interests in this part of the country.

DETROIT SHOW DECORATIONS READY

DETROIT, Jan. 10—Practically all the decorative effects for the annual auto show under the auspices of the Detroit Auto Dealers' Association, which will open at the Wayne Hotel Gardens Jan. 24, continuing through Jan. 29, are in readiness to be installed, and every indication points to an even more artistic decorative scheme than ever before, making it the beauty show of the country, as well as the leader in point of actual number of models shown. Manager Gillespie and his staff of assistants are busy rounding out the details for the big event, and announce confidently that although the garden will not be available until four days before the show opens everything will be in readiness for the opening night.

ASKS DISSOLUTION OF VOTING POOL

DETROIT, Jan. 10—Still another angle to the E-M-F-Studebaker controversy has developed, and may add to the complications already existing. When the selling contract between the two companies was signed last spring seven-tenths of the stock of the E-M-F Company was pooled and placed with the Union Trust Company, with the understanding that it was to be voted in accordance with the instructions of all of the stockholders interested. Having rescinded its selling agreement with the Studebaker concern, the E-M-F Company majority stockholders want the pool dissolved, formal notice having been served on the Union Trust Co. The latter has appealed to the circuit court.

SOUTHERN ENDURANCE RUN IN MARCH

SAVANNAH, GA., Jan. 10—It has been decided by the Savannah Automobile Club to have the next endurance run, which will be to Jacksonville, Fla., to be run on the 28 and 29 of March. The Savannah News, the Jacksonville Automobile Club and a local paper there will also take part. The scout car, a Maxwell to be driven by Robert Brockett, Jr., will leave next week to pick out the route on which the run will take place. It has been figured out that two days will be taken, as on the one to Atlanta. The distance is something like 175 miles. This is but one of the many runs that will be run by the Savannah Automobile Club this coming year.

AUTOCARS TO AUTO CHEMICAL'S RESCUE

ARDMORE, PA., Jan. 10—An automobile "train" as a fire-fighting adjunct was the novel sight witnessed here New Year's eve, when an alarm of fire was received from Wynnewood. The auto chemical responded at once, but its weight was such that progress through the heavy snow was slow, until some one suggested calling on the Autocar people for assistance. A hurry call brought two "testers," which took the heavy chemical in tow and in a trice the "train" was dashing down the Lancaster Pike through the partially broken snow-drifts, reaching the scene of the fire in time to prevent serious damage.

BIG TAXICAB SERVICE FOR BALTIMORE

BALTIMORE, Jan. 10—The Taxi-Service Company, of Baltimore was incorporated in Trenton, N. J., and under its charter the new concern is permitted to carry on a general taxicab and garage business; to transport merchandise as well as passengers and to manufacture and deal in vehicles for conducting its business. The new firm takes over Stewart & Company's livery business, including taxicabs, horses, carriages, etc. The Taxi-Service Company has an authorized capital stock of \$500,000 divided into 5,000 shares of a par value of \$100. Of this sum, \$250,000 is preferred stock bearing 7 per cent. cumulative dividends, and the remainder is common stock. Prominent Baltimore financial interests are behind the new enterprise. The plans include the addition of a considerable number of cabs to those in service, with the object of giving Baltimore a service second to none.



Four Shaft-Driven Baker Electrics Out for a Winter Run

Pittsburg's New Traffic Regulations—

Pittsburg has experimented one week with the new rule of the police department that all vehicle traffic should proceed in certain directions on leading downtown streets. Everything goes north on Smithfield street and south on Wood street, and the same order will probably be observed a little later on Liberty and Penn avenues, which are parallel with each other and nearly parallel with Wood and Smithfield. It is the intention also to do away with all vehicle traffic during the day on Fifth avenue, between Grant street and Liberty avenue. So far, the change has been received with comparatively little objection, and aside from a few collisions and altercations the first day the order went into effect, it has been welcomed as a sure means of doing away with the fearful downtown congestion.

Royal Equipment Company, Bridgeport, Conn.—This company, established by the late Arthur H. Raymond in 1902, has been reorganized. The new company will be known as the Royal Equipment Company, with a capital stock of \$50,000 that has been fully paid. The officers of the company will be E. B. Knowles, president and treasurer; L. V. Raymond, vice-president, and W. G. Hoag, secretary. Mr. Knowles was formerly Mr. Raymond's confidential adviser and business manager, while Mr. Hoag was associated with the founder of the company in the first years of its establishment. The new concern begins business in a factory five times as large as that previously occupied.

Brampton Aeroplane Chains—Chas. E. Miller, 97-101 Reade street, New York, who is the sole United States agent for Brampton chains, has just received from the factory in England samples of a special chain which Brampton Bros. are now making for aeroplanes. This chain is made of nickel steel, and of a special size long pitch and a very narrow link, the size being 1¼-inches pitch, 5/6-inch wide. It is made specially loose, allowing a certain amount of lateral flexibility, which is desirable for the purpose for

which it is used. This size chain was designed for and is used on the "Cody" biplane. Mr. Cody, an American, is in charge of the aeronautic division of the English Army.

Parts Exhibition.—At the headquarters of the Rambler Automobile Company of New York, during first show week, there was shown a stock of duplicates of every part of every Rambler car manufactured in the Rambler factory since the factory was started—ten years ago. The importance of being able to purchase an extra part with ease and dispatch has never been fully realized by new purchasers of automobiles, but always considered of great importance by people who have owned cars. The New York exhibit made by the Rambler representatives illustrates what has been accomplished by Thomas B. Jeffery & Company in this respect within the last ten years.

An Interesting Feature.—To demonstrate the qualities of the Truffault-Hartford shock absorber, its manufacturers utilized a unique device at the Grand Central Palace Show. Two miniature automobiles, perfect in detail and complete equipment, including extra tires, electric headlights, tool boxes, etc., were shown in comparison, running on a rough road at a speed of about thirty miles an hour, one of the cars being fitted with shock absorbers, while the other is not. It was plainly seen that the passengers in the car with the shock absorbers found it always "easy going," while the occupants of the other car were having a rather rough time of it.

Ford Motor Company Gives Christmas Gifts.—Following an established practice, the Ford Motor Company distributed about \$80,000 among the workers in their big plant—this as a token of appreciation for faithful service rendered during the preceding twelve months. While the bulk of the money was distributed in Detroit, it still remains that all the branch offices and factories were remembered, so that Ford employees in twenty cities between New York and Seattle, as well as in Paris, France; Mel-

bourne, Australia, and Winnipeg, Canada, were all remembered. The money was divided according to years of service.

Rambler Leads in Minnesota.—Figures just compiled for the State of Minnesota show that there are in use in that State 6,282 automobiles. It is interesting to note that a very large number of these cars have been purchased by residents of small towns. The compilation shows that in towns of under 1,000 population there are in use 1,169 automobiles, while in towns between 10,000 and 21,000 population there are only 252 automobiles. Thomas B. Jeffery & Co. say that the New Rambler leads all those within \$1,000 of its price in towns under 1,000 population, as well as in towns under 3,000 and 5,000 population.

Franklin Owners First and Third.—The automobile owners of Ohio are required to take out a State license each year, and among the 23,000 motorists in that State there is rivalry for the low numbers. For months ahead application was made last year for certain numbers to be given when the tags were sold for the new year. The distinction of carrying No. 1 for the year has fallen to Thomas B. Paxton, Jr., a lawyer of Cincinnati, who owns a Franklin automobile. No. 3 has been secured for another Franklin by E. M. Schoenborn of Columbus, president of the Columbus Baseball Club.

Franklin with a Glass Hood.—George E. Messer, Syracuse, N. Y., branch manager for the Franklin Automobile Company, is driving about the streets of that city with a Franklin motor car equipped with a hood made of glass instead of metal. The interior of the hood is illuminated by means of a series of electric lights. When standing in the city streets, especially in the evening, the car is always surrounded by a crowd of interested onlookers. The engine is, on occasions like this, allowed to run while car stops are made, so giving a visual demonstration of the operation of the motor.

To Share Company Earnings.—The Warner Gear Works of Muncie, Ind., have joined the ranks of that class of manufacturers who believe that employees should share directly in the company's profits, and at a recent meeting an appropriation was made for distribution among employees who have completed three distinct periods of service. The plan was proposed by president A. L. Johnson, and the board of directors fell in line with the idea. It is expected that this move will encourage or increase the efficiency of the organization very materially.

Sebring "Six" Makes Record.—In a recent test the Sebring "Six" was driven from Sebring, O., to East Liverpool, O., without a change of gears. The president of the Sebring company ordered that it be driven full speed over the intervening hills, and to be sure that the speed lever was not changed the car was wired into high speed. R. M. Allen drove, accompanied by B. H. Sebring. The gear was not changed during the trip and the "Six" took all of the bad hills without the least difficulty, evidently having plenty of power in reserve at all times.

Long Manufacturing Company, Chicago.—This maker of radiators and accessories has just bought a tract of land in Detroit fronting on Cass avenue 320 feet and extending from Amsterdam to Burroughs avenue, and plans have been

prepared for a two-story modern plant with 100,000 square feet and employing 1,000 men. The new plant at Detroit will be operated as a branch of the main plant in Chicago. The capital of the company has been increased to \$300,000. J. B. Long is president and treasurer and Louis Shisler secretary.

Interesting Times Square Co. Exhibit.—This New York company, extensive dealers in second-hand machines, has a comprehensive collection of cars, ranging from the small runabout to the great sightseeing 'bus, of all cylinder equipments and all motive powers, whether gasoline, steam or electricity propelled vehicles. The showrooms, located at 213 West Forty-eighth street, are commodious—each car being readily accessible—while the lighting facilities are good, permitting minute inspection.

Special Cars for Automobiles.—The Chicago, Burlington & Quincy Railroad has followed the lead of the Milwaukee road in furnishing special freight cars for shipments of motor cars, and it is reported that an order for 500 has been placed with the Burlington's shops for early spring delivery. The West Milwaukee shops of the Milwaukee road are still building these special cars, Wisconsin motor car manufacturers having become partial to them since first being granted their use.

Iroquois Garage Company, Columbus, Ohio.—This concern recently incorporated in Columbus, Ohio, with a capital stock of \$20,000, taking over the Columbus Garage & Machine Company of that city. The new company contains many of the men interested in the old one, and the management will not be changed. H. L. Thurma is general manager. The Iroquois Garage Company, in addition to the garage business, will be central Ohio agents for the Empire and Grabowsky trucks.

Owen-Thomas Company Moves.—The Corliss Motor Company, of Corliss, Wis., is moving the machinery and equipment of the Owen-Thomas Motor Car Company, of Janesville, Wis., to Corliss, where it is being installed in the plant of the Wisconsin Engine Company. This plant will be used until the new works can be erected. The Wisconsin Engine Company is building the motors for the new car, which will be a six-cylinder, 60-horsepower, of all-steel construction.

Sheriff Gets a Franklin.—A 1910 Model H Franklin car has been purchased for the sheriff of Milwaukee county, Wisconsin, by the board of supervisors. The car is of seven-passenger capacity, with a 6-cylinder, 42-horsepower motor, weighing 3,000 pounds. The price is \$4,000, fully equipped. The sale was made by the Franklin Automobile Company. Fourth and Prairie streets, Milwaukee. The city now has 12 automobiles and the county three.

Demot Runabout Goes "Cross Country."—In order to demonstrate that the Demotcar is not only an asphalt performer, but a good "rough road" proposition as well, Albert K. Peters and W. C. Corey, of the Harper Aldrich Company, Detroit, drove from that city to Port Huron, over roads representing about every disreputable stage; time, 2 hours and 40 minutes; distance, 62 miles. The car finished in good shape.

Smith Automobile Company, Grand Rapids, Mich.—Plans are under way to remove this plant from Topeka, Kan., to Grand Rapids, Mich. Of the \$180,000 in

stock of the company, 17 Grand Rapids business men have acquired a controlling interest, and it is said that as soon as legal formalities are complied with, work will be commenced on the local factory. It is planned to have 500 cars for future delivery.

New Transfer Company.—The Canfield Transfer Company, just organized, will conduct an auto passenger business and transfer business between Canfield, Ohio, and Youngstown, Ohio. It is possible that later a mail route may also be established over this line. The company was organized by H. W. and Bertha Corll, C. H. and Melvin Neff, and Lola E. Mock, of Canfield, Ohio. The capital stock is \$50,000.

Another Carriage Company Comes In.—The Collings Carriage Company of Philadelphia, old established and conservative, will take on a line of automobiles, selecting the Rainier. The Atlanta Gold Trophy Car, which made a new record of 200 miles in 173 minutes, will be placed on exhibition in the Collings showrooms, 1719 Chestnut street. This in addition to several other models.

Stewart Taxi Service Company, Baltimore.—This organization has been incorporated under the laws of Maryland, with a capital stock of \$10,000. The incorporators are: Harry L. Stewart and T. Foley Hisky, of Baltimore; Harlan W. Whipple and James J. O'Brien, of New York, and Claude S. Jarvis, of Philadelphia. Other New Yorkers are Lawrence W. Barnum and William S. Stafford.

Pittsburg Automobilists Up In Arms.—The automobilists in Pittsburg are much enraged over the fact that a bill is now pending in Congress, imposing a tax of \$10 upon all automobiles traveling from one State into another. They argue that such a bill, if passed, will limit the excursion business to local States—also that it will work a great injury to hotel interests all over the country.

Important Executive Change.—Clare A. Pickard, president of the board of directors of the Salisbury Wheel & Manufacturing Company, is no longer connected with this concern. S. H. Penfield has been appointed his successor, while Edwin D. Cook has been made vice-president of the board of directors to fill the vacancy caused by the appointment of Mr. Penfield.

A Milwaukee Move.—The Kissel Kar Company, of Milwaukee, distributors in a large Western territory for the Kissel Kar, of Hartford, Wis., has moved from Fourth and Poplar streets (Motor Row) to 228-232 Wisconsin street, Milwaukee, into the quarters formerly occupied by G. W. Browne Motor Company, recently merged with Bates-Odenbrett Auto Co.

Correction as to Quantity.—In an item occurring on page 1194, of THE AUTOMOBILE issue of December 30, with reference to the output of the Warner tops, there was a notice in effect that this company expected the output to be "1,000 tops." By way of correction it is stated that this should have read "10,000 tops." We make this correction in justice to all.

Midland Rubber Company of Columbus.—This concern incorporated in Columbus, Ohio, with a capital stock of \$25,000 to manufacture and sell rubber appliances. A part of the output will be designed for the automobile industry. The incorporators were Fred W. Hoeschele, John L. Hoeschele, Fred A. Caskey and H. J. Powell.

New Reo Bucks the Snow.—A new model, four-cylinder Reo went through the recent snow blockade from New York to Spring Valley, N. Y., a distance of 50 miles, over roads which had not yet been broken. H. D. Hewlett, driver and owner, states that he arrived home with the car in splendid condition, minus trouble and delay.

General Motors Company of Detroit.—It is announced that this company has incorporated in Michigan. The incorporation is for \$10,000, with W. C. Durant, Flint, W. J. Mead, Lansing, and C. R. Hathway, New York, each owning one share of stock. C. R. Hathway, Trustee, owns the other 97 shares.

Motor Parts Company, Chicago.—The removal of this company is noted, from 309 Fisher Building, Chicago, to 1735 Michigan avenue, the same city. This company is selling agent for the Providence Engineering Works, and for the National Porcelain Company. R. E. Hardy is president.

Direct Drive Mfg. Co., Indianapolis, Ind.—This concern has been organized with paid up capital of \$50,000, to manufacture the Parkinson direct-drive transmission. The officers are: W. H. Parkinson, president; B. F. Meixell, general manager; A. C. Downing, secretary and treasurer.

Racine to Keep Big Plant.—It is said that the Racine, Wis., Manufacturing Co. will not move to another city, Racine manufacturers and merchants having offered to subscribe a fund of \$100,000 to assist the company in rebuilding the plant destroyed by fire on Dec. 12.

Pennsylvania Rubber Company Elects Directors.—At a recent meeting of the stockholders of this company, the following were elected directors for 1910: Herbert Du Puys, H. Wilfred Du Puys, Chas. M. Du Puys, F. A. Wilcox and Seneca G. Lewis.

Still Doing Business.—The plant of the King Automobile Tire Company, at Racine, Wis., was damaged \$3,000 by fire on January 1. The production will be carried on as usual, new equipment having been installed.

IN AND ABOUT THE AGENCIES

E.M.F. and Flanders "20" in Columbus.—These cars will be represented in Columbus, Ohio, by a \$20,000 corporation headed by Foster G. Burdell. The territory covered consists of Franklin, Madison, Pickaway and Delaware counties. The incorporators are: Foster G. Burdell, H. M. Myers, Randolph Walton, G. S. Frambes and P. D. Newall. The officers are: F. G. Burdell, president and general manager; H. M. Myers, secretary and attorney, and P. B. Newall, treasurer.

E-M-F and Flanders, Philadelphia.—J. C. Schwartz is president, J. E. Gomery secretary-treasurer and Frank Yerger technical manager of the new company which will represent the E-M-F and Flanders cars in Philadelphia. Temporary offices have been opened at 1229 Chestnut street, but when the concrete building now in course of erection at Broad and Callowhill streets is completed, about February 1, the new concern will establish its quarters there.

Franklin, Cincinnati and St. Louis.—The Franklin Automobile Company, which maintains branches for the sale of automobiles made by the H. H. Frank-

lin Manufacturing Company, of Syracuse, has announced the opening of branches in Cincinnati and St. Louis. Mr. Braerly, formerly branch manager of the Olds Oakland Company in Toledo, has charge of the Franklin interests in St. Louis.

Winton, Marion, Overland in Milwaukee—The Bates-Odenbrett Auto Co., 503-507 Broadway, Milwaukee, Wis., representing the Winton, Marion and Overland, is making extensive improvements in its garage and salesrooms. New offices have been established, giving more stock room. The company recently absorbed the George W. Browne Co.

Isotta, Simplex and Pennsylvania, Philadelphia—Failing to secure adequate space at the coming Philadelphia Show, these cars will have a two weeks' show of their own in their quarters on the southwest corner of Twelfth and Walnut streets, Philadelphia. J. M. Quimby & Company, at the above address, are the local agents.

Studebaker, Portage, Wis.—The Cook-Jones Auto Company has been organized at Portage, Wis., to handle the Studebaker gasoline and electric cars. A livery and accessories department will also be established. James R. Jones was for several years associated with the Hokanson Automobile Company, of Madison, Wis.

Continental Tires, Cleveland and Denver—The Continental Caoutchouc Company has added two more distributing agencies to its list. These are the Pennsylvania Rubber and Automobile Company, 145 Euclid avenue, Cleveland, and the Boss Rubber Company, 1614 Broadway, Denver.

Lavalette & Company, New York—This concern, makers of the Eisemann Magneto, have removed from 112 West 42d street to more extensive quarters in the new Stoddard-Dayton Building at 57th street and Broadway, New York. This concern will occupy the entire sixth floor.

Another Foreign Agency—Flandrau & Company, well-known as carriage builders, have taken the exclusive selling agency in the United States for the Brasier car, built by the Société des Automobiles Brasier, Paris. These cars will be equipped exclusively with Michelin tires.

E-M-F, Wilmington, Del.—This company will be represented in Wilmington, Del., by the T. C. Bradford Company. Wilmington is the center of the selling territory, comprising the State of Delaware and the eastern shore of Maryland, over which there has been a dispute.

R. E. Hardy Company, manufacturers of ignition plugs and other accessories, will move from their present location in New York City to Chicago, Ill. They will occupy a floor at 1735 Michigan avenue. Their location is in the center of Chicago's "Gasoline Row."

Early Motor Car Company of Columbus—A change is noted in that this company, organized by Dr. L. M. Early some time ago, has taken the Central Ohio agency for the Paterson car made at Flint, Mich., in addition to the Rambler and Babcock electric.

Ford Agency Change in Pittsburg—Paul Brown Patterson and Dr. J. M. Emery, of New Castle, Pa., have formed a partnership and have taken over the Ford agency in Pittsburg. They will be located at 135 Pittsburg street.

McIntyre, Winston-Salem, N. C.—The Motor Company of this city has secured the State agency for the automobiles and delivery wagons of the W. H. McIntyre Company of Auburn, Ind.

Mitchell Cars, Clarksburg, W. Va.—The Clarksburg Automobile Company, Clarksburg, W. Va., will handle these cars in the future. This company has been recently organized.

Hess-Bright Bearings, Chicago—The Hess-Bright Mfg. Co., of Philadelphia, will open a Chicago branch at 1800 Michigan avenue about January 20 to care for its Western trade.

Cole "30," Columbus—John T. Gill has secured the agency for this car in Columbus and surrounding territory. He will be associated with the Love Garage Company.

Pierce, Racine, Wis.—D. Elmer Roberts, of Racine, Wis., has established a local agency for the Pierce Motor Car Co., of Racine, at Wisconsin and Fifth streets.

Mitchell, Kewaunee, Wis.—W. Heck, of Kewaunee, Wis., has been appointed a district agent for the Mitchell in several counties of northern Wisconsin.

PERSONAL TRADE MENTION

W. McK. White, formerly associated with the Grand Central Palace Show, will leave for Indianapolis February 1, where he will enter the advertising and selling department of the Premier Motor Manufacturing Company. He will be associated with President H. O. Smith. Mr. White has been in the automobile trade for a number of years and has been prominently identified with the sales departments of several well-known manufacturers. He has also done editorial work for the *Press* and *Evening Times* in Philadelphia and was later connected with the staff of *THE AUTOMOBILE*.

A. L. Garford, of Cleveland, gave a luncheon last Thursday noon at the Engineers' Club to the old Federal Mfg. Company producers, including besides A. L. Garford, the host, M. B. Johnson, A. O. Smith, L. M. Wainwright, D. B. Warwick, W. W. Wardrop, W. L. Colt, J. M. Sinyard, L. D. Bolton, W. P. Culver, F. W. Lawrence, T. J. Heller, Herman Ely, F. M. Germane, E. K. Moore and G. J. Leonard.

John A. Poole, formerly associated with Col. Albert A. Pope, and European traveler for the American Bicycle Company, later sales manager of the Olds Motor Works and Buick Motor Company, has formed a connection with the Babcock Electric Carriage Company. Mr. Poole has been appointed general sales agent for the Babcock.

Elmer Apperson, president Apperson Brothers Automobile Company, Kokomo, Ind., according to latest reports, is convalescing at Lakeview Hotel, Leesburg, Fla. His absence from the Garden Show caused no little comment, as it is the first he has missed since the first show was held in the Garden in November, 1901.

H. E. Doty, formerly sales manager of the Southern half of the Western sales department of the White Company, has been transferred to San Francisco, where he will assume the position of assistant manager of the Pacific Coast department. J. O. Sackman, of the Chicago office, has succeeded Mr. Doty.

J. J. Fuerth has opened a training school for chauffeurs and car owners in

Syracuse, N. Y. A corps of competent instructors have been engaged for the purpose of teaching the manipulation, construction and repair work of cars. Mr. Fuerth was formerly from New York.

Louis C. Block, manager of the Philadelphia branch of the Ford Motor Company, who has been in Cincinnati for the past two months establishing a branch house, returned to the Quaker City last week.

Hans Renold, proprietor of the great chain works employing 1,000 men in Manchester, England, and bearing his name, is at the Manhattan, New York City. Herr Renold has done much in developing chain transmission.

James F. Fairman is now connected with the Automobile Tire Company, Inc., with headquarters at 1625 Broadway, New York.

F. L. Gallagher, secretary and treasurer of the Modern Tool Company, Erie, Pa., died on November 29.

THERMOID RUBBER COMPANY ENTERTAINS

On December 30 the Lozier Motor Company was entertained by President Stokes of the Thermoid Rubber Company, at a dinner given in the apartments of Mr. Stokes in the Hotel Royalton, New York. The dinner, while not large, is said to have been one of the finest ever served in the greater city. On this occasion the Thermoid Rubber Company presented the Lozier Motor Company with a beautiful and most remarkable tablet executed by Peter Korzilius, a sculptor of note. This tablet, which measures three feet in height and five feet in length, shows the two Lozier cars in action, winning the great 24-hour race at Brighton Beach on October 15. They were reproduced from actual photographs of the race. It will be remembered that in this race the Lozier car No. 3 finished in first place, establishing a new world's record of 1,196 miles. The dinner was evidently an expression of mutual good will, inasmuch as the Lozier Company were strong in their acknowledgment of the efficiency of Thermoid Brake Lining, and gives it due credit for the part it played in the winning of this important victory.

TREND OF THE TIMES IN OHIO

COLUMBUS, O., Jan. 10—Automobile sales companies, garages and motor supply houses are being formed in every part of Ohio. The records of the Secretary of State show that many concerns were incorporated during the past week as follows:

The Automobile Trucking & Delivery Company, Cleveland, \$15,000, by B. R. Graham and others.

The Mauser Auto Cab Company, Youngstown, \$5,000; Louis K. Mauser and others.

The Zumstein Taxicab Company, Cincinnati, \$300,000; Charles S. Dale and others.

The Automobile Country Club Company, Bevis, Hamilton County, \$50,000; John Hamilton Davis, W. H. Hilland, John M. Thomas, Jr., Robert J. Buckwater and Theodore Jung.

The Atlas Motor Car Company, Cincinnati, \$10,000; Hans Richards, Mrs. H. D. Braun, Mrs. F. B. Williams, Oscar Hood and Harold Becket Gibbs.

The Anchor Motor Car Company, Cincinnati, \$50,000; W. J. Brunsmann, F. M. Blair, Morris J. Dale and others.

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